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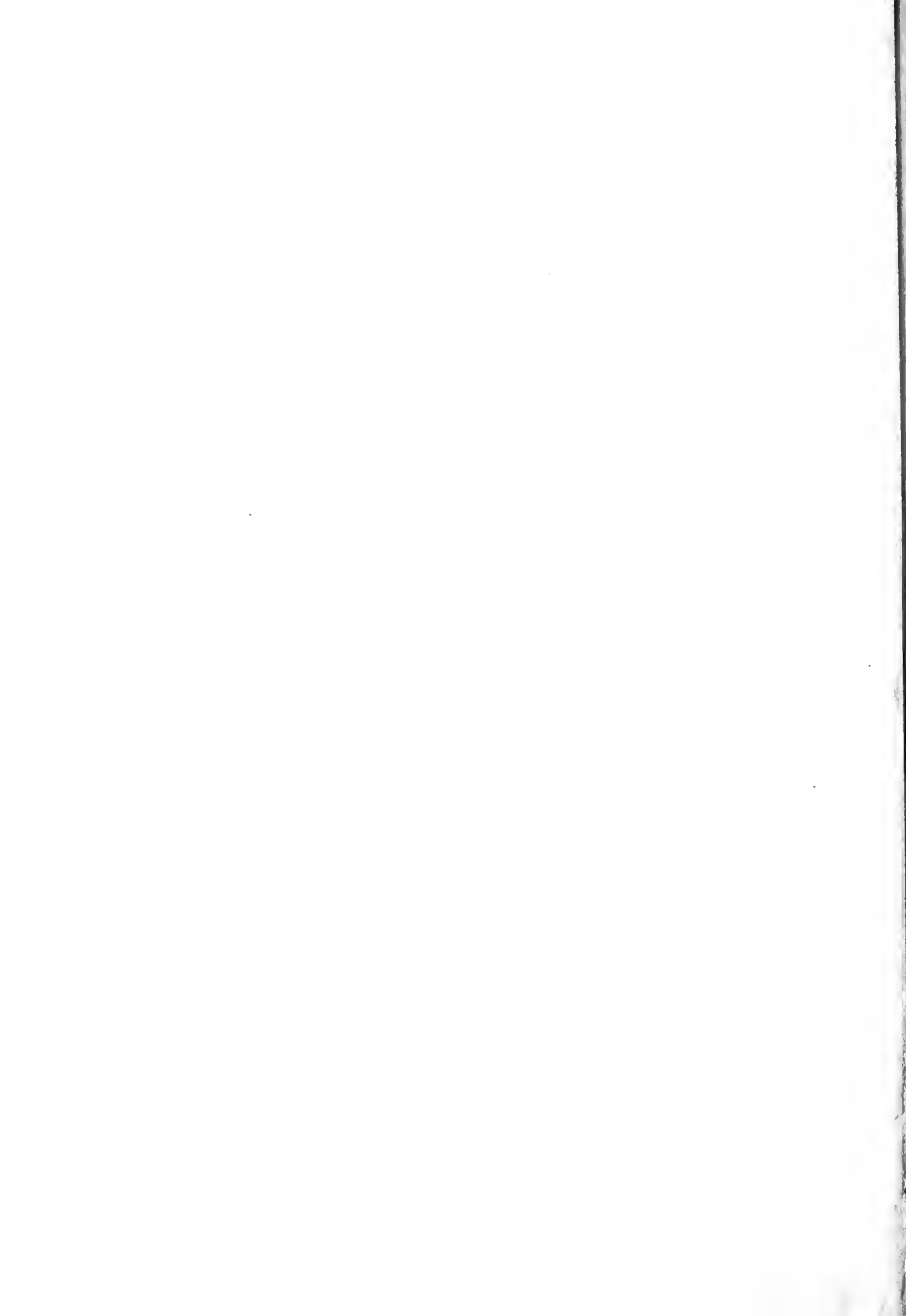
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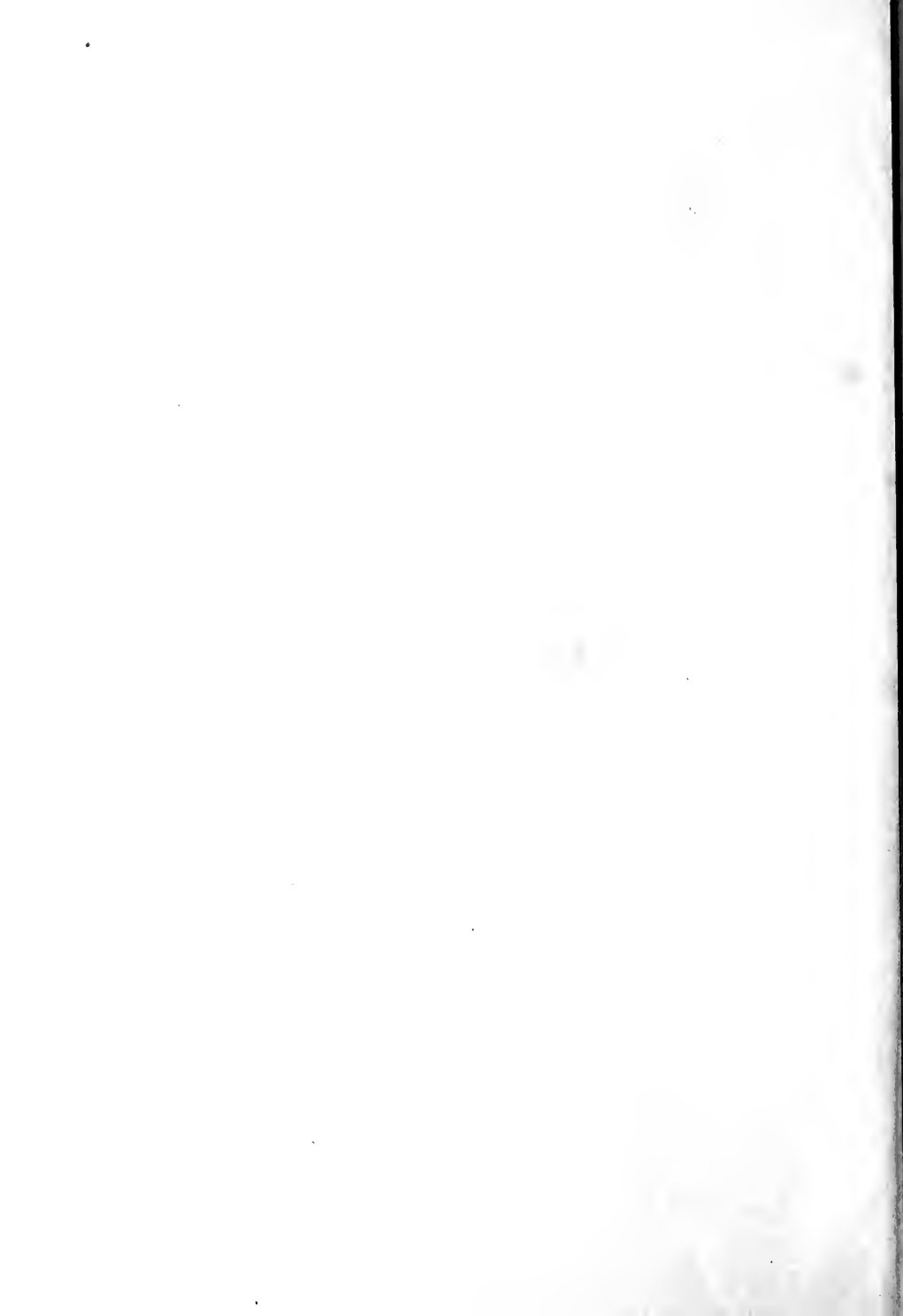
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Pacific Marine Review

JANUARY 1934



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UNIQUE GRACE LINE OFFERING OF A VISIT TO SIX "FOREIGN" COUNTRIES IN A VOYAGE BETWEEN

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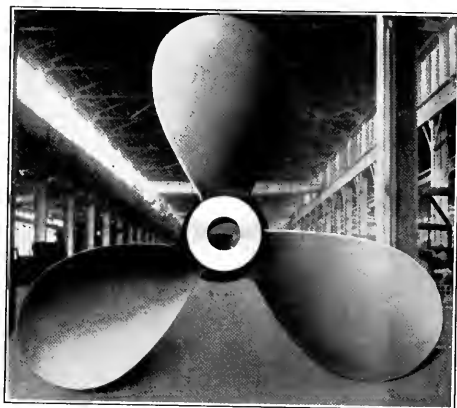
525 W. 6th Street, Los Angeles

Official Organ
PACIFIC AMERICAN
STEAMSHIP ASSOCIATION



Official Organ
SHIPOWNERS ASSOCIATION
OF THE PACIFIC COAST

Variable v.s. Constant Pitch Propellers



S/S Mariposa propeller with aero-foil section.

Our records indicate that 1933 will be a banner year for variable pitch propellers. Practically all of the vessels now in ship-yards for conversion or repairs for increased speed to meet the U. S. Government mail requirements will be so fitted.

The designers and owners of these vessels realize the higher efficiency obtainable with airfoil section, variable pitch propellers and so specify them. The most recent installation we made of this type of wheel resulted in a 15% fuel reduction at the same draft and speeds under which the vessel operated with the constant pitch propeller.

These installations speak for themselves. We will be pleased to analyze your vessel's performance and advise you whether or not a change in design would increase the speed or reduce the fuel consumption.

CRAMP BRASS & IRON FOUNDRIES CO.

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Pacific Marine Review

The National Magazine of Shipping

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VOLUME XXXI

JANUARY, 1934

NUMBER 1

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**Official Organ
Pacific American
Steamship Association**

James S. Hines
President and Publisher
Bernard N. De Roehie
Vice-Pres and Manager

500 Sansome Street, San Francisco
Member of Pacific Traffic Association

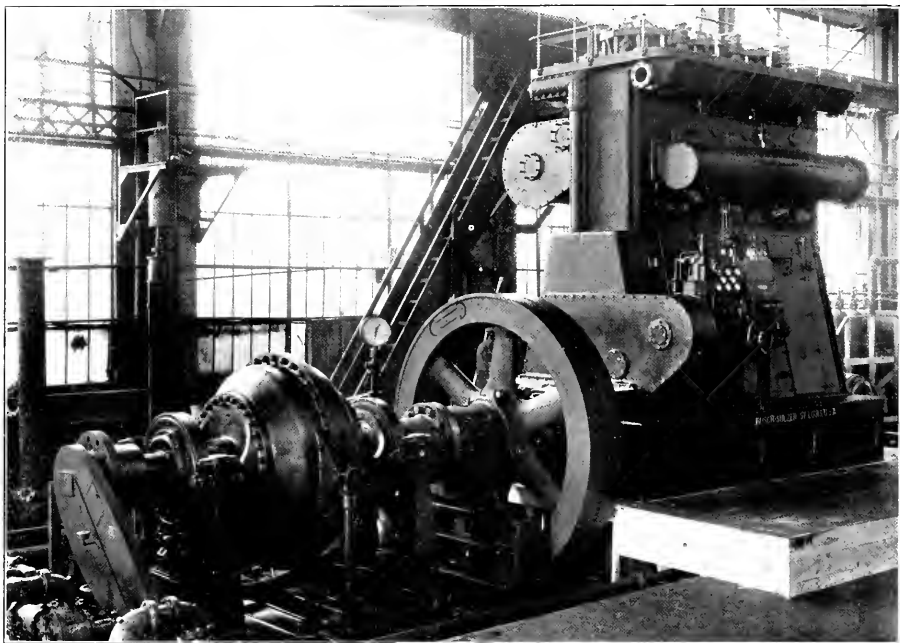
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**Official Organ
Shipowners' Association
of the Pacific Coast**

Alexander J. Dickie
Editor
M. J. Suitor
Asst Editor

Chas. F. A. Mann, Northwestern Representative, 1110 Puget Sound Bank Bldg., Tacoma, Washington

THE ULTIMATE DIESEL



30" Bore x 52" Stroke—the Largest Trunk-piston Cylinder
in the World—now on Test Busch-Sulzer Works.

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MINIMUM HEADROOM
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Pacific Marine Review

VOLUME XXXI

JANUARY, 1934

NUMBER 1

Editorial Comment » » »



The Pacific Merchant Marine

Pacific Marine Review is now entering its thirty-first year as a journal representing American ship-owning interests on the Pacific coast and as a technical medium for the exchange of ideas on all matters affecting the Merchant Marine industry on the Pacific Ocean. During the thirty years of life of this journal, there has taken place a tremendous development in this industry. During the past ten years the Pacific Ocean basin has held a greater lure for international traders and has been responsible for more merchant marine development than has any other regional area in the world.

The year 1903 is a long way back, judging by modern progress. No person then engaged in the shipping game would have seriously predicted the type, volume or scope of cargo and passenger ships and services now operating out of our ports. Who, for instance, could have foretold the present activities of the American Hawaiian Steamship Company, the growth of the Matson Navigation Company, the world-wide development of the Dollar Steamship Company, the expansion of the direct, Europe-to-Pacific-Coast merchant ship services, the creation of direct South American service, or the boom in the Trans-Pacific Merchant Marine. Who could then have envisioned the feverish activities of the Pacific coast shipyards in building that great fleet of cargo vessels to help win the World War.

During this thirty-year period we have seen San

Francisco, practically destroyed in three days, rise phoenix-like from her ashes to justify the faith of a watching world by building a fairer, cleaner, more glorious city on the ruins of the old. We have watched Seattle grow from a straggling waterfront town to the Queen City of the great Northwest. We have recorded the entire development of Portland's modern port. We have witnessed the building of that great Southwest gateway, the port of Los Angeles. Time and space fail us to tell of San Diego, Tacoma, Greys Harbor, Olympia, Everett, Bellingham, Willapa, Astoria, Vancouver (Washington), Vancouver (B.C.), Victoria, Prince Rupert, and many Pacific coast ports.

Surely it has been a thirty-year period crowded with achievement and full of the lusty vigor and daring initiative of pioneer spirits, many of whom labored manfully at the development without ever coming into the rewards of fruition.

As an industry, Pacific coast ship operation is organized into two units: the Ship Owners' Association of the Pacific Coast, and the Pacific-American Steamship Owners' Association. These two bodies initiated, and are carrying on, a pioneer cooperative effort toward greater safety on board ship and at marine terminals. As a result, Pacific coast terminals, while ranking very high in efficiency, are the safest terminals for cargo workers.

Approximately 25 per cent of the total American merchant seagoing ships now are owned and operated from Pacific Coast ports. In addition to this American flag fleet, there is a large and growing fleet of vessels of all flags, designed and built for Pacific trade, and now operating therein. These vessels come from Sweden, Norway, Denmark, Holland, Great Britain, France, Germany, Italy, Japan, and other countries. In the aggregate they form a very considerable tonnage and they purchase at Pacific coast ports many supplies and much equipment. The ports are quick to note this business, and considerable healthy rivalry manifests itself in expansion to take care of future trade developments.

In no other coastal region today is there such growth in shipping as is evident on the Pacific coast of North America, and the next thirty years will witness an even greater development. It, therefore, behooves the American manufacturer of marine equipment, the American shipbuilder, and the distributor of marine specialties to study the Pacific Coast market, to get adequate representation at Pacific Coast ports, and to publicize his products through Pacific coast media, whenever, and wherever possible.

"Building ships and navigating them utilizes vast capital at home; it employs thousands of workmen in their construction and manning; it creates a home market for the products of the farm and the shop; it diminishes the balance of trade against us precisely to the extent of freights and passage money paid to American vessels, and gives us a supremacy upon the seas of inestimable value in case of foreign wars."

—Ulysses S. Grant.

Outlook for Shipping in 1934

In many respects the calendar year, 1933, has indicated that shipping can look forward to continued recovery in 1934, and it might be a wholesome exercise for American shipowners to make a survey of world shipping to discover for themselves just what the condition of the industry is, and what are its major trends. Two of the major indices are "laid up tonnage" and "plans for new ships."

Laid Up Tonnage: According to Lloyd's annual report, the world's laid up tonnage as of July 1, 1932, was estimated at 15,000,000 gross tons. That is a lot of ships. It is 22 per cent of the world's total merchant marine, and is more gross tonnage than the entire United States seagoing merchant fleet. In fifteen months following that date, over 2,900,000 tons were scrapped or sold for scrapping; and over 400,000 tons were lost by casualty, making a total reduction of over 3,300,000 tons. Estimates for the last quarter of 1933 show that this scrapping of tonnage is going on at an accelerated rate, and Lloyds estimate that by July, 1934, the world's available shipping tonnage will be about 65,000,000 gross tons, or at the 1927 level, as compared with the 70,000,000 gross of 1931. Lloyds also estimate that over 18,500,000 gross tons of this total is over 20 years old, and must in the near future be scrapped, to be replaced by new tonnage or to further reduce the world's total.

Plans for New Ships: During the year ending July 1, 1933, the shipyards of the world turned out new vessels representing a gross tonnage of 750,000 which is the lowest shipbuilding output recorded for the past fifty years. During that same twelve months, there were submitted to Lloyds, plans for 142 new vessels, representing 323,600 tons, which is an increase in tonnage of 25 per cent as compared with 1931-1932 and a decrease of 42 per cent as compared with 1930-1931.

There is, however, an improvement. During the third quarter of 1932, plans were submitted to Lloyds representing 55 vessels of 112,000 gross tons or at the rate of 448,000 gross tons a year.

In passing, it is interesting to note that coal-burn- ing steam-reciprocating jobs still propel the bulk of the world's merchant tonnage. Lloyds Register Book records 66,627,524 gross tons for 1933-1934, of which total, 47,206,393 tons, or 71 per cent, are steam reciprocating; 9,220,739 tons, or 14 per cent are steam turbines; and 10,200,000 tons, or 15 per cent, are diesel.

On the score of these two indices then, we may as-

sume; first, that shipping is due for a gradual but decided improvement; and, second, that the leading ship- owners of the world are recognizing this condition, and organizing their resources to meet it.

On the other hand, shipping freight rates, the world over, are ruinously low, and many shipping operations are being carried on today without net profit and some without any adequate provision for depreciation.

However, volume of cargo has increased during the past six months, and many indications point to a continuation of this increase. This, of course, should gradually bring freight rates up to normal.

In our own American merchant marine, the enforce- ment of the Shipping Code under N.R.A. will prevent some of the ruinous cut-throat competition that has been for several years past taking the heart out of the American operator in coastwise, intercoastal, and over- seas routes; and should certainly tend to stabilize freight rates at a fair figure.

National plans for industrial and commercial re- covery are working throughout the world and should materially increase the volume of international trade. On the whole, the American shipowner, facing 1934, can look forward much more confidently than he could when facing 1933.

● Postal Contracts

"But", some reader will say, "What about this Sena- torial investigation? Are not the American shipowners in the overseas and intercoastal trades liable to lose government support?" Our answer is, "Emphatically no."

The monies received by these shipowners from the Federal government are in payment of a contractual obligation on a ten-year basis, and so long as the ship- owner meets the stipulations of the contract, or until it can be shown that a contract was obtained by delib- erate fraud, the Federal government is bound to con- tinue its payments.

It must be said here again, as has been said so often in these columns, that the postal contracts under the Merchant Marine Act of 1928 are not contracts to carry mail. They are contracts wherein the United States agrees to pay certain sums per mile for the operation of a specified type and speed of ship on a specified schedule, and on a specified route. The United States government does the specifying.

Incidental to this contract are the obligations of the shipowner, not only to keep these specified ships oper- ating whether freight offers or not, but also to carry, free, all mail that the United States may deliver at his dock, and to maintain his vessels at all times ready to hand over to the United States government in case of emergency.

It is easy for anyone familiar with ship operation to see that under many conditions the meeting of these ob- ligations by the ship operator will not be compensated by the government payments under these contracts.

No serious observer of the present Senate investiga- tion believes that it will lead to the cancellation of any postal contracts now in force. It may lead to some changes in the conditions under which future contracts will be consummated.

American-flag vessels are today carrying approximately one-third of the country's foreign trade. The remaining two-thirds is carried by the ships of other nations, principally our commercial rivals. In some instances, foreign lines entrusted with American goods are owned by interests with which we are in direct competition.

Pacific Coast Shipbuilding

The largest craft launched from the ways of a Pacific Coast shipyard during the year 1933 was a caisson for the San Francisco-Oakland Bay bridge. The building of this caisson and of others for this huge bridge and for the Golden Gate bridge formed the bulk of new construction for the yards of the coast. Several fishing boats, launches, tugs, and yachts, some of fair size, kept the principal boatyards engaged at a low percentage of their capacity, but in the shipyards new work was conspicuously absent.

Again we call attention to the advantages of maintaining shipbuilding and ship repair plants at Pacific Coast ports. Strategically, from a naval viewpoint, there can be no argument, and yet today, were there to arise any emergency involving the nations of the Pacific basin, the Navy Department would find Pacific Coast shipyard plants far less prepared to take care of navy requirements than was the case at our entry into the World War. Yet it is even more important that the Pacific Coast be well prepared for shipbuilding than it is in the case of the Atlantic coast, for the United States has to protect a much longer and more exposed coast-line on the Pacific.

This argument is equally forceful in connection with many other branches of the Federal government. The

Lighthouse Bureau, the Coast Guard, the Department of the Interior, the Coast and Geodetic Survey, the Department of Public Health, and the Customs, all use vessels of various types and sizes. All of them are finding that they need more and larger vessels in Pacific waters. To these government departments, it is thus increasingly important that adequate shipbuilding and shipmaintenance plants be maintained at Pacific coast ports.

We would therefore suggest the wisdom of having all government programs for shipbuilding arranged so that certain of the ships to be built shall be allocated to the Pacific Coast area, and so that bidding on those ships shall be confined to shipyards located in this area. The plan would make certain the maintenance of Pacific Coast shipyards, and should cost the United States very little, since there would be sufficient regional competition to keep costs within reasonable limits.

If we continue the programs of the past three years so far as private yards are concerned, and build all ships on the Atlantic coast, the Pacific coast will get practically no benefit from the spending of public shipbuilding funds, except in a very indirect way such as selling food products to Atlantic coast workmen. If, on the other hand, 40 per cent of all such construction were allocated to Pacific coast yards, a very considerable percentage of the payroll involved would still be expended in manufacturing plants located east of the Mississippi River.

There are still many ships to be contracted for under the present programs for use of the funds provided by the Public Works Administration of the National Industrial Recovery Act. Write your congressmen and ask them to get busy on the job of having some of this work allocated to Pacific Coast shipyards.

DEPARTMENT OF COMMERCE
UNITED STATES SHIPPING BOARD BUREAU
DIVISION OF RESEARCH

SUMMARY OF THE
EMPLOYMENT OF AMERICAN STEAM AND MOTOR MERCHANT VESSELS
OF 1,000 GROSS TONS AND OVER AS OF SEPTEMBER 30, 1933
(Does not include Lake or River Tonnage)

REPORT
NO. D.R. 300
TABLE I

| Services | Combination Passenger and Freight | | Freighters | | Tankers | | Total | |
|------------------------------------|-----------------------------------|------------|------------------|------------|---------|------------|------------------|------------|
| | No. | Gross Tons | No. | Gross Tons | No. | Gross Tons | No. | Gross Tons |
| PRIVATELY OWNED | | | | | | | | |
| *Heavy Foreign | 40 | 277,160 | 37 | 128,492 | 29 | 209,078 | ^b 106 | 565,330 |
| Oversens Foreign | 62 | 633,089 | 165 | 945,434 | 14 | 110,746 | 241 | 1,686,269 |
| Coastwise | 72 | 386,092 | 400 | 1,721,609 | 260 | 1,756,990 | ^c 732 | 3,864,721 |
| Laid Up Vessels | 54 | 351,578 | 207 | 767,667 | 59 | 357,849 | ^c 320 | 1,477,074 |
| Total Privately Owned | 228 | 1,554,919 | 809 | 3,563,212 | 362 | 2,435,263 | 1,399 | 7,593,393 |
| GOVERNMENT OWNED | | | | | | | | |
| *Heavy Foreign | **2 | 19,244 | **8 | 5,201 | - | - | 4 | 24,445 |
| Oversens Foreign | - | - | 48 | 273,812 | - | - | 48 | 273,812 |
| Coastwise | - | - | - | - | - | - | - | - |
| Government Service | - | - | 1 | 8,292 | - | - | 1 | 8,292 |
| Admiral Richard E. Byrd Expedition | - | - | 1 | 5,645 | - | - | 1 | 5,645 |
| Laid Up Vessels | 4 | 85,849 | ^b 266 | 1,285,077 | - | - | ^c 230 | 1,367,926 |
| Total Government Owned | 6 | 102,093 | 278 | 1,578,027 | - | - | 284 | 1,680,120 |
| Total American Fleet | 234 | 1,697,011 | 1,087 | 5,141,239 | 362 | 2,435,263 | 1,683 | 9,273,513 |

*Heavy includes Canada, Mexico, Central America, West Indies and North Coast South America to and including the Guianas and Foreign Trading Foreign.

**Panama R.R. Vessels

Note: Vessels under 2,000 Gross Tons included: (a) Includes 1 Panama R.R. Vessel

(b) 3 vessels - 3,539 Gross Tons; (d) 37 vessels - 57,280 Gross Tons;

(c) 42 vessels - 62,576 Gross Tons; (e) 1 vessel - 1,649 Gross Tons;

Let's Get Going

A Simple Adjustment in Code Clauses will take the Brakes off N.R.A. Shipbuilding and put more Men at Work in American Shipyards

The code of fair competition under N.R.A. as proposed by the American Shipbuilding Industry, specified a 40-hour week. This is the work week proposed and adopted in over 90 per cent of all the codes approved in the principal American industries. After considerable argument and protest, an amended code was approved for shipbuilding, and the industry is struggling along under the provisions of this code.

In place of a 40-hour week, this code imposes a week of 36 hours for all commercial work, a week of 32 hours for all U.S. naval work, and a week of 30 hours for all work paid for by funds from the Administration of Public Works. This 30-hour week would apply on practically all the new construction for the Coast Guard, the Lighthouse and Public Health Services.

A formal demand for a uniform 40-hour week has been filed with the N.R.A. and at the request of President Roosevelt, the National Labor Board appointed a fact-finding committee to investigate shipyard labor conditions and study the adjustment of divergent hours and wages.

As this is written, the report of this committee has been presented to the Board, but that body has not yet published any decision.

Composed of N.R.A. deputy administrator, William H. Davis, President of the National Council of Shipbuilders, H. Gerrish Smith, and John R. Frey, President Metal Trades Department American Federation of Labor, this committee found all U.S. Navy Yards working average 40-hour weeks, while private yards were forced to operate on 36-hour, 32-hour, and 30-hour weeks as listed above. The committee reported that there was great resultant confusion, and much financial loss to both management and labor, and that "nothing less than a uniform work week in all yards including Navy yards, will put an end to this confusion."

The report of the committee made the following recommendations:

1—That the National Labor Board Recognize and declare that a solution of the difficulties presented in the shipbuilding and shiprepair industry demands a uniform work week for all shipbuilding and shiprepairing in all private yards, and preferably also in the Navy Yards.

2—That the National Labor Board recognize and declare that the Navy Yard wages as fixed by the Wage Board of Review under the Act of 1862 cannot be altered except by that board and are not to be a subject matter of discussion in the settlement of the present difficulty.

3—That for the purpose of immediately working out the problem of hours and wages in the shipbuilding and shiprepairing yards, within the above stated principles, by conferences and joint agreement, a conference be

promptly called by the National Labor Board of persons representing:

(a) The employees in the shipyards who have complained to the board. (It being understood that the board will determine whether the proposed representatives are truly and adequately representative of the employees in the private shipyards.)

(b) The international unions whose members are employed in the shipyards, such representatives to be chosen through the Metal Trades Department of the American Federation of Labor and approved by the president of the American Federation of Labor.

(c) The shipyard owners, and

(d) The National Recovery Administration.

And that in addition thereto the Public Works Administrator and the Secretary of the Navy be invited to be represented in the conferences.

4—That in its deliberations the conference shall be guided by the facts established in this report; by the primary purposes of the National Recovery Act as herein defined; by the need to safeguard commercial business of the private yards, having in view the permanent welfare of both labor and capital in the industry, and by those conditions which will lead to the maximum immediate employment of men consistent with the greatest speed of progress on the new ships.

5—That the joint agreement so arrived at be submitted to the National Labor Board for its approval and as a basis of its recommendations to the President.

C. L. Bardo, President of the New York Shipbuilding Company, in a formal protest demanding that the shipbuilders be granted a 40-hour week explains how the 32-hour week on naval work needlessly hampers productive capacity of both men and plant as follows:

"In restricting the work-week to thirty-two hours instead of forty, making two shifts of 6 hours and 24 minutes instead of 8 hours each, the shipbuilding code prevents the operation of the shipyard for more than 13 hours a day instead of 16 hours, thereby reducing the productive hours both of men and equipment from an 80-hour week to a 64-hour week. This deprives both the men and the shipbuilding company of 25 per cent of their productive labor-hours. Both men and plant are idle during those 16 productive hours. The men lose the additional earnings they so badly need, and the shipbuilding company loses the use of 25 per cent of its plant and facilities. The resulting delay in performance of its operations prolongs the capital investment without any additional monetary return. Yet no gain in the objectives of the Recovery Act compensates for any part of this loss. The limitation on the working hours below a 40-hour week neither increases nor decreases in the slightest degree the number of employees which could be worked normally on a 40-

(Please turn to Page 16)

New Larger Diesels with Trunk Piston Simplicity

Following closely the design of their 19 $\frac{1}{2}$ x 27 two-cycle, single-acting, trunk piston engine, Busch-Sulzer Bros. Diesel Engine Co. are announcing their new large trunk piston marine diesel which is intended to meet the requirements of both single and twin screw propulsion of ocean-going ships at speeds from 90 to 130 revolutions per minute, in any number of cylinders up to twelve with maximum rating of 10,000 shaft horsepower for the twelve-cylinder unit.

"To the best of our knowledge, the engine is the largest trunk piston diesel so far built in the world," states E. B. Pollister, president and general manager of this St. Louis firm, which is the original manufacturer in the United States engaged in designing and building this type of power-plant.

Our illustrations show this new diesel to marked advantage. Elaborate tests have been conducted since the engine was first started in early December. Preliminary running was entirely successful and free from troubles of any kind. The fuel consumption at one-half load was .36 pound per gross horsepower. Compression pressures and other adjustments are now being made in preparation for full power trials.

The exceedingly low piston dismantling height is made possible in this larger trunk piston by equipment permitting the connecting rod to be disconnected from the piston pin within the crankcase; so that the connecting rod and crank bearings remain undisturbed while the piston alone is removed for inspection.

The engine is arranged for receiving scavenging air either from an independent turbo blower or a Busch-Sulzer positive displacement rotary blower located as shown in the cross-section and gear driven from the engine shaft.

Like its predecessors it is fitted with A.E.G.-mechanical injection which was brought out in 1930, of which a total of five have been built, including three ten-cylinder, 3000 horsepower stationary units, and the 2150 brake horsepower eight cylinder unit installed in the M.S. Chippewa, owned by the Puget Sound Navigation Co. of Seattle, which vessel has covered some 150,000 miles without engine troubles and without interruption of normal schedules.

In introducing larger trunk piston diesels the builders are pointing to two innovations in the design of their two-cycle trunk piston types, which now overcome objectionable features of earlier models:

First—a separate piston pin housing provides full length bearing for the pin, reducing the bearing pressure per square inch about one-third, practically eliminating heating, and, with forced lubrication, the wear, of course, is negligible. The pin is designed to turn in the housing and is bolted to the connecting rod. The

port-scavenged Busch-Sulzer type of two-cycle engine, with pressure always on top of the piston lends itself well to this construction, with pressure being constantly downward on top of the pin. This separate housing permits an unpierced piston skirt, avoiding distortion due to assembly of a tight fitting pin with two press fits; or later heat distortion, due to warming up of the pin during running. The new design permits a piston head of forged steel, the ultimate material for large diesel pistons.

Second—an annular, open chamber in the lower part of the cylinder jacket, through which the piston is at all times under the observation of the operator. Any lack of proper lubrication or undue heating of the piston due to insufficient cooling medium is at once noted and corrected by the operator, while the engine is in operation, and before damage has occurred. A hot piston turns brown. In contrast, a cool, properly lubricated piston shines; and one brown piston among several bright shiny pistons immediately attracts notice and invites investigation by the operator. If increase in lubrication or cooling medium does not restore normal safe operating conditions, the particular piston may be relieved of load by cutting off its fuel.

Above and below this inspection chamber are cast iron packing rings, held in place by bolted glands, the upper rings scraping from the piston into sludge channels lubricating oil from the combustion chamber portion of the cylinder, and the lower rings removing and draining back into the crankcase clean lubricating oil by sludge or by combustion gases blowing past the piston is thus prevented.

The piston becomes longer with the addition of the sludge chamber to the lower end of the cylinder; and this lower portion, with its two sets of scraper rings, acts with the lengthened piston to form a lower guide, eliminating vibration, the tendency of the piston to slap, and attendant noises.

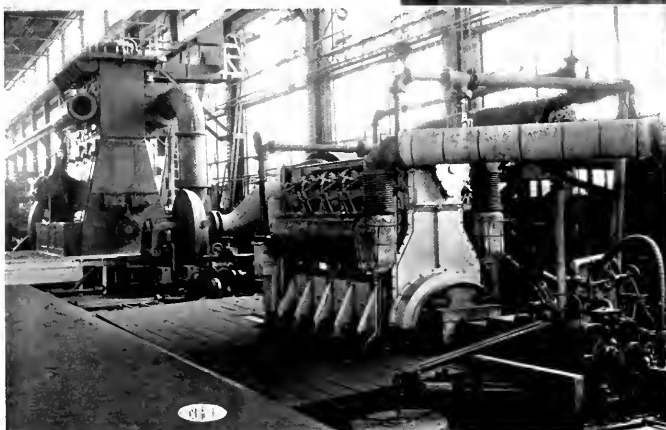
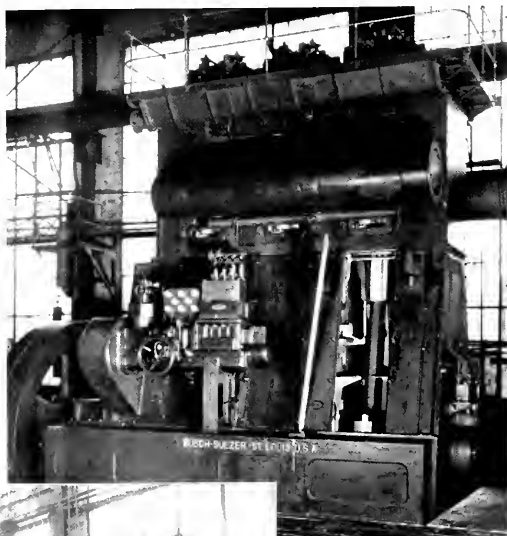
The increased area of the long piston and cylinder reduces the wall pressure substantially, with corresponding reduction in cylinder wear. The longer piston also requires a longer connecting rod of 5 $\frac{1}{4}$ times the crank throw, compared with 4 $\frac{1}{2}$ times for conventional type of trunk piston engine; and the angularity forces are reduced to one-third less than such forces of the shorter connecting rod of the double acting cross-head type, the length of which, for obvious reasons, is usually only four times the crank throw.

The elimination of the crosshead reduces the height and weight of the engine about one-third; and as the width of the base is determined by the height, the bed-plate is narrower, further reducing the weight of the engine, occupying less space, and requiring smaller, less expensive foundations.

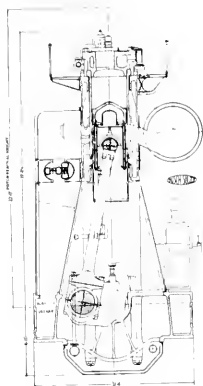
Busch-Sulzer Presents New Large Trunk Piston Diesel

Notable Features of Ocean-Going Power Plant with Maximum Rating of 10,000 S. H. P. for 12-Cylinder Unit

At the right: Front view of 3-cylinder 30" x 52" trunk piston diesel, with door swung open, showing accessibility and simplicity, with piston exposed to inspection for about 75 percent of its length.

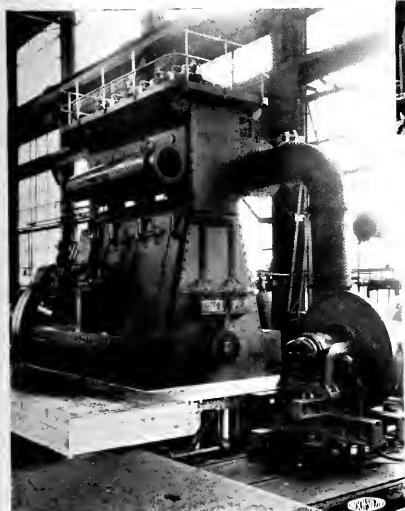
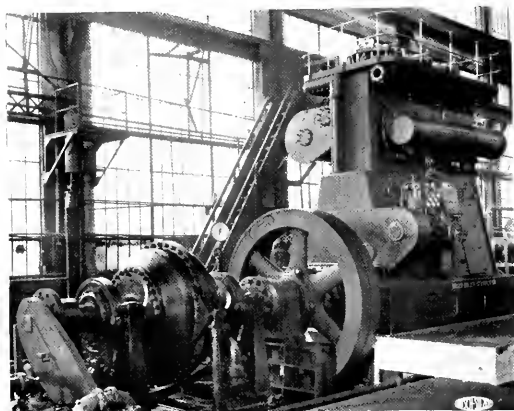


Left: General view Busch-Sulzer test bed, U-8 1600 B.H.P. locomotive diesel in foreground; 3-cylinder 30" x 52", 2250 H.P. trunk piston engine at left. New type 750 B.H.P. four-cycle engine at extreme left; four of six new Busch-Sulzer types, all fitted with A.E.G. Hesselman mechanical injection, and developed during depression.



Below: Three-cylinder 30" x 52" trunk piston engine on test bed, Busch-Sulzer works, attached to 9000 B.H.P. Heenan-Froude brake.

Above: Cross section through Busch-Sulzer 30" diameter x 52" stroke, trunk piston Diesel, rated 750 B.H.P. at 120 R.P.M.—the largest trunk piston Diesel built today.



Left: Forward end view of three cylinder 30" diameter x 52" stroke, trunk piston engine, showing General Electric turbo blower supplying scavenging air.

Pacific Coast Sailing Ships

By Harbour Stow

II. The Wreck of the American Barque Coloma

An Account of the Heroism Shown by the Wife of a British Columbia Lighthouse Keeper

Most of us are familiar with the story of Grace Darling and her heroism on the English coast. Very few, even in British Columbia, remember today the brave deed of Mrs. Thomas Paterson.

A hard south easter was blowing at Cape Beale, night was falling, and the lighthouse keeper, Paterson, had made all secure for the night when, looking seaward, he sighted a vessel in dire distress drifting helpless through the driving sleet and heavy sea.

The Quadra, the government patrol vessel was at Bamfield, but, as often happened, the wire was down. The keeper could not leave his post. Only Mrs. Paterson was left, and she did not hesitate. Through the blinding storm, alone, with only a lantern, she made her way for ten miles through that wild night along a mere trail through the wilderness, climbing over prostrate trunks and fording rushing torrents. At midnight they heard a faint hail on the Quadra. It was

Mrs. Paterson, pushing from shore in a small boat, shouting as she plied the oars.

In a very short time the Quadra was steaming from Bamfield, and at midnight was standing by the doomed barque. Second Officer McDonald and a boat's crew did the rest, though not without great difficulty and risk.

Captain Allison and the crew were picked up one by one from the counter of the Coloma. The Quadra then steamed away to Victoria. The Coloma drove ashore on Seabird Island in plain view of Cape Beale lighthouse and before the Quadra and Captain Hackett, with his shipwrecked crew were out of sight. Nearly \$1,000.00 was collected amongst the seafaring communities of Vancouver, Victoria, Seattle, and as far south as San Francisco, as a token of the public admiration of Mrs. Paterson and her heroism. This was sent up to Cape Beale along with other presents and a medal from the United States government.



The American Bark Coloma under full sail in ballast.

Tales of the Sea

Occasional Yarns as Told to the Editor by Marine Vets

I. The Bucking Sub

You wouldn't believe a submarine could stand on her nose, and neither would I if I did not have the story direct from a man who not only was inside the ship, but who was actually handling her when she took this nose dive while going ahead full speed! Not a soul was hurt, and strangely the vessel was unharmed, though she stood on her nose on the bottom in sixteen fathoms at an angle of about seventy-five degrees.

This vessel was an unusual craft, and her designer had ideas and initiative when he conceived and built a ship which had no storage batteries for submerged propulsion, but ran on gasoline engines. The many skeptics predicted, as they usually do, that the plan would get no further than the blueprints. In this case the plan omitted the blueprint stage altogether, and the ship was built almost by rule of thumb.

Despite the devastating accomplishments of submarines during the war, they were all, prior to 1914, very much in the experimental stage. The largest were about 175 feet in length, carried eight to twelve torpedoes, cruised at twelve knots on the surface, and could sustain the same speed for about three hours submerged, longer at lesser speeds. Propulsion submerged was, of course, accomplished by storage batteries and electric motors, which combination per unit of power developed were much heavier than the engines and fuel which produced equivalent surface power. There was a definite limit in weight which could be assigned to electric propulsion, and it was this limitation which suggested to the designer that some means might be accomplished to run submerged on internal combustion engines. The process turned out to be highly successful except for the one thing which eventually caused it to be abandoned, though only after a series of elaborate and extensive experiments. The rest of it was simple, air for combustion was stored at high pressures in air bottles, and a very ingenious pump discharged the gasses of combustion overboard, but these gasses left a wake, or trail, which could not be obliterated, and a submarine which leaves a wake can be depth bombed out of the water before she can become effective.

But in 1914 this radical experiment had possibilities. It was the invention of a young engineer from the middle west who had never seen salt water before he came to California several years before. An experimental ship was built on the bank of a slough by a group of young fellows whose faith and enthusiasm produced not only the funds, but the mechanical ability to put together a ship sixty-five feet long with a nine foot beam, with nothing more in the way of tools than a plate roller, a lathe and an air hammer. They were not bothered by considerations of transverse metacenter, and when the ship was completed, the gods were with them, for the metacentric height was plus about one-

quarter inch. A person had to be careful to stand on the center line to avoid a serious list, but when the ballast tanks were filled, there was no difficulty even if in surface trim there was always some doubt as to whether the craft would remain rightside up.

Now a submarine can make a surface dive, or a crash dive, the latter, of course, being the kind which is made from a running start. In the first experiments with this vessel, stationary dives only were made, and she would go out a few miles and gently rest on the bottom in anywhere from ten to twenty fathoms. All hands would then light cigarettes, and after the air became almost suffocating, presto—the engines were started (with the clutches out) and in thirty seconds the air was clear and sweet. The valve on the air bottle manifold opened automatically as the pressure in the boat was reduced, closed again when equalized. Just why this craft did not blow up from an explosion of gasoline fumes is not quite clear, but she didn't.

"Came the day" when the first crash dive was to be attempted. There had been long delay getting everything ready, particular trouble having been encountered with the diving rudder, for while the ship could be steered by hand rudder, the diving rudder just wouldn't work that way. Eventually the same air hammer which had driven the hull rivets was hooked up with the diving rudder in such a manner as to operate the rudder with a fair degree of success, at least it functioned all right alongside the dock.

The weather was perfect for the test, the sea smooth and hardly a breath of air. With stout hearts these amateur sailors started out to prove that their ship could do almost anything that a fish could do. With the inventor at the air manifold and ballast tank valves, the ship was steered to a point several miles off shore, and at the signal, hatches were closed and ballast water was admitted to the tanks. Soon the vessel was awash and a final jolt of ballast was sufficient to neutralize her positive buoyancy, and thus far everything was fine. The engines were humming on gasoline and bottled air and the depth gauge showed that there was little if any of the ship above water. There was no periscope through which to keep watch or steer, two tiny dials alone furnishing navigational aid, one a boat compass for steering, the other a depth register for diving. The little air hammer buzzed as the diving rudder was moved to the "dive" position, and down went the nose of the boat about ten or fifteen degrees. Something had happened, however, for she went only so far, and the depth indicator showed no change. It was quite obvious that the ship did not have enough ballast, that the diving rudder was out of the water and therefore ineffective. More ballast, then more, was

(Please turn to Page 11)

Round the Horn—1934

San Francisco Vessel to Carry Darwin Memorial Expedition on a Long Voyage of Research and Exploration

To set sail on a "tall ship" for a "vagrant gypsy life, to the gull's way, and the whale's way, where the wind's like a whetted knife" is a longing which many a landsman shares with the author of "Sea Fever". Few, however, come nearer the realization of this dream than reading fireside fiction about gales and doldrums, shipwrecks and desert islands. Even the seasoned seaman, who looks at a projected two-and-a-half year cruise around the Horn with a more practical eye than the poet, has moments of wishing he could just junket around on an old tub and explore some of the out-of-the-way places of the earth. To these, as well as to zoologists, botanists, and archeologists, the adventures and misadventures of a group of 20 men and 2 women who sailed from San Francisco last month aboard a three-masted schooner for an extended voyage to points south, will hold much of interest.

The Darwin Memorial Expedition Company, headed by Baron Victor Wolfgang von Hagan, an independent scientist, purchased the power schooner, *Golden State*, in San Francisco in October, and had her fitted out there for a scientific expedition to South and Central America, the Galapagos and other islands of the Pacific.

The schooner, which had been laid up from February, 1929, until her purchase by von Hagan, was originally owned by the Union Fish Company, San Francisco. Built in Alameda, by Frank Stone and Son, for the codfish trade, in 1913, she is an auxiliary sailing vessel—a 3-masted, baldheaded schooner; with a length of 128.7 feet; beam, 31.1 feet; depth 11.3 feet, and gross tonnage 353. She is equipped with a donkey engine and one 4-cylinder 150 BHP gasoline engine of the famous "Union" heavy duty type. Her speed under power is 7 knots.

● Purpose of Expedition

The expedition is announced as an "an ecological survey of the coastal areas of Central and South America and neighboring islands, including excursions into the interior at strategic points for the purpose of research in zoology and archeology with botany as a pivot point."

Taken in detail this somewhat formidable statement covers a great many subjects beyond the grasp of the layman. However, certain aspects of the voyage will be of interest to those whose understanding of the scientist's problems is limited. The Department of Mammalogy, Ornithology, and Taxidermy, for instance will take motion pictures of the King condor of Bolivia, and expects to return with a live collection of black jaguars, tapir, Andes bears, pythons, and other South American

Captain Haldor Smith
of the Schooner
Golden State.



jungle animals to be placed in the Fleishacker Zoo in San Francisco. For capturing these beasts the expedition is equipped with patent gas guns, a new and infinitely safer method of approaching the more dangerous denizens of the wilds.

Baron von Hagan believes that much can be learned on the west coast and in the interior of Latin America that will be of benefit to civilization, particularly in the field of medicine.

"The most important phase of our work, perhaps, will be to geographize medicine" he is quoted as saying. "It is becoming more and more important for people to know what kind of medicines they must use in certain localities and under certain conditions. We hope to be able to solve a few of these problems."

To this end, a study of Indian poisons and remedies, diseases peculiar to certain parts of the world and the endemic areas of infectious diseases; blood specimens; malaria, hookworm, syphilis symptoms; and certain diseases identified with distant tribes will be among the lines of pathological research.

● Underseas Camera Along

One colorful activity of the expedition will be the taking of submarine pictures by means of an underwater motion picture camera, invented by Leon F. Douglass of Menlo Park, California. This machine can be operated from the surface of the water, guided by the attached periscope, and is efficient to the depth of 40 feet. With this apparatus it will be possible to film the activities of many denizens of the deep without danger to the operator.

● Motion Pictures of Far Tribes

Human beings, as well as sea monsters and wild beasts will be the subject of camera study, as the expedition hopes to return with films and sound recordings of the speech and tribal ceremonies, as well as the daily lives of several of the less known inhabitants of the South American jungles. Mr. Sargent Child, eth-

nologist and sculptor, and his wife, both members of the party, also hope to obtain facial masks from which tribal type heads can be cast.

Other projected activities include such varied interests as collections of musical instruments and antiquities of ancient peoples; study of orchids and tropical fruit plants; exploration of the stomach contents of snakes, frogs, birds and mammals; observation of coastal and deep water fish; and a collection of birds and mammals for preservation and mounting.

● Personnel of Party

The research party includes Baron von Hagan, director and entomologist; Mrs. von Hagan, librarian and laboratory assistant; Professor G. G. Ferris (Leland Stanford University), parasitic entomologist; Dr. W. Andrew Archer (University of Michigan), botanist; Peter Douderooff (Leland Stanford University), ichthyology; Dr. A. J. Jackemy (University of California), research pathologist; Sargent Child (Amherst), ethnologist and sculptor; Mrs. Child, scientific stenographer; Carl Otto Grassl (University of Michigan), assistant botanist; W. F. Gerecke, photographer; and Steven Broder, artist.

The ship's crew consists of Captain Haldor Smith, William Mason (University of California), Alexander Brown III (brother of Mrs. von Hagan), Joy de Jong, Bernard Hechinger (California Nautical School), and Lawrence Hill (Leland Stanford University). Captain Smith is a skipper with a picturesque past, having been in command of a schooner in 1917 which was captured in the South Pacific by Count Felix von Luckner of the German raider, *Seasler*, which was later wrecked on a South Sea Island.

Mrs. Christine Inez Brown-Brooks of Walnut Grove, Sacramento County, California, is financial sponsor of the expedition which is informally affiliated with Leland Stanford University and the University of Michigan.

● Will Honor Darwin

The expedition adopted its name because of a plan to stop at Chatham Island in the Galapagos to place a monument to Charles Darwin, who landed there September, 1835, as a member of the famous scientific expedition on the ship, *Beagle*. The monument will be

made of the volcanic stone to be found on Chatham Island. A plaque bearing an inscription written by Leonard Darwin, 83, only living son of the naturalist, will occupy the center of the monument, two other plaques portraying the voyage of the *Beagle* and a likeness of Darwin being placed below.

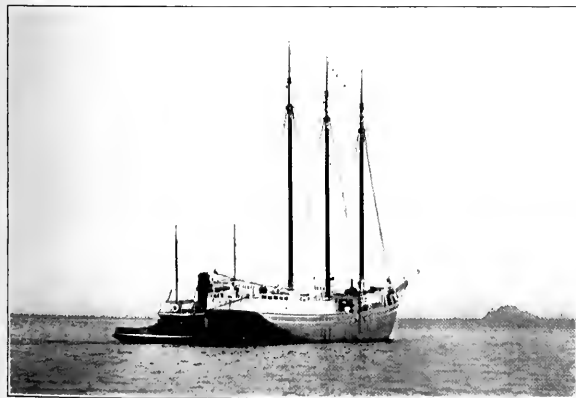
● Itinerary

The ship's itinerary, incomplete when she sailed, will include short stops in various reports of call in Mexico; four months in Guatemala; three months in Salvador, Costa Rica, Nicaragua, and Panama; two weeks in Colombia; six months in Ecuador; four weeks in the Galapagos; seven months in Peru; three months in Chile; and some time on Cape Horn and the Falkland Islands. Plans for the Atlantic phase of the voyage have not yet been made.

The Bucking Sub

(Continued from Page 11)

allowed to flow into the tanks fore and aft, and slowly the depth indicator showed the vessel sinking, until suddenly the rudder became effective, and how very effective! The nose started down and the tail up, the depth gauge moved from ten to fifteen feet, to twenty feet, but the faithful air gun had jammed with the diving rudder at "hard" dive position, and the ship kept on going over and over until the operating crew had to stand on the forward bulkhead head of the control room. Only seconds were required to stop the engines, seconds which seemed like hours, and to start blowing water from the ballast tanks, but not soon enough. With a thud which should have shaken the engines loose from their foundations, this little sub hit bottom, nose on, in a hundred feet of water! A thrill for those on board, and very much of a close call. All credit to young men who built a stout ship, for in due course she floated and returned to her moorings. Later experiments proved every principle involved, but the tell tale wake was never eliminated and the original craft now lies in the mud, like an abandoned mine which had failed to produce pay dirt. Yet she might have made history!



The 3-masted auxiliary bald-head schooner *Golden State*. She is 128.7 feet long, 31.1 feet beam, 11.3 feet deep, and has a gross tonnage of 353. She has a 150 H.P. heavy duty Union gas engine and can do 7 knots under power.

Under the Arctic Ice

Some Notes on Sir Hubert Wilkins' Arctic Expedition in the Submarine Nautilus

By Ray Meyers

Radio Officer of the Expedition



Sir Hubert Wilkins.

Editor's Note: Ray Meyers is an "old timer" in the very modern art of wireless. He served as a radio operator in the U. S. Navy during the world war, and was recipient of the 1932 Gold Medal award for the Veteran Wireless Operators' Association. It was he who sent the radio compass bearings that led to the rescue of the survivors of the Vestris disaster. Meyers is now in the employ of the Radio Marine Corporation of America as an operator in their Pacific Coast Station at Marshall, Marin County, Calif.

When Sir Hubert Wilkins made the statement a few years ago, that he was going to attempt a trans-arctic submarine expedition, instead of a few applications from "nuts", he was flooded with so many requests from qualified specialists coming from all parts of the world, that assembling a crew became a problem, and had to be "handled with kid-gloves". Fortunately, right here in America, we had one of the foremost authorities on submarines, Mr. Simon Lake, so these gentlemen got their heads together and went into the problem of selecting a crew and deciding upon the equipment to be used in this great undertaking.

First of all, a skeleton organization must be located. Mr. Lake, a great submarine boat inventor and builder,

was broadminded enough to realize that the men who actually operated these boats knew a few things about them that he himself might overlook. He considered that perhaps the best man in the world to command such a submarine was Captain Sloan Dannenhowser, an ex-Navy skipper, a dare devil, a submarine boat test captain, one of those fellows who takes command on the first trials of a new boat, and above all, a real man and a congenial fellow.

The Chief Engineer decided upon was Ralph Shaw of Bridgeport, Connecticut. Shaw was the master mechanic for the Lake Submarine boat company. He had served on board submarines from the early days when gasoline engines were first used for propulsion on the surface, and in the Navy was an engineer on submarines in the old days, when it was necessary to send a guarantee man with a submarine, to train the Navy personnel and guarantee that the boat would function. This was just the man for the job as Chief Engineer.

For master diver and diving officer, Lieutenant Frank Crilley, world's greatest deep sea diver was selected—not because Frank sported the Medal of Honor, the Navy Cross and countless other decorations, but because Frank was a cool-headed executive, always "there" in an emergency, who knew a submarine from A to Z. Frank broke the world's record way back in 1915 when he descended 308 feet in the waters off Honolulu to find the ill-fated submarine F-4. It was Frank who played an important part in the raising of the S4 and the S51 on the east coast. Frank knew his submarines—whether inside a darkened submarine on a regular cruise or sunk below the surface of the seas, he was right at home. He knew what to do, to flood this tank or blow that one and he knew when to do it. This was the diving officer for the expedition.

A man must be found to act as Chief Electrician of the boat. He, too, must know submarines. He must know his electricity, and in addition, he must be a competent radio operator. There were some two thousand applications for this billet alone. I happened to know Captain Danenhowser and Frank Crilley was an old "side kick" of mine. I also had rubbed elbows with Simon Lake before, but the expedition "wasn't so hot" in my estimation and besides, I had a perfectly good position as Chief Engineer of a broadcast station in



Ray Meyers at the radio controls as temporarily set up for test purposes. Note Fathometer on bulkhead.

January

the East. However, I did hate to see these fellows set out with some "Ham and Egger" as we radiomen are inclined to call a poor operator, so sat down and wrote to Frank, suggesting that he take his brother, John, along. John was a very competent man and could be depended upon to do the right thing at the right time. My letter probably brought to mind the statement that Priscilla made to John Alden, "Why don't you speak for yourself?"—back came a letter from the whole gang, asking me if I wouldn't come down to Philadelphia and talk things over. The whole expedition was discussed, the equipment used was talked about and I was shown how safe this whole thing really would be. Before I knew what it was all about, I agreed to go along as the electrical officer and like a boy getting good marks in school, I dashed home with the news.

Of course, my wife didn't like the idea very much but I soon convinced her that I was as safe in a submarine as I would be on the streets. This was brought forcibly home, when a few days later, I suggested to John Crilley that I step aside and let him take the position. He replied, "Not me—you guys are crazy, you haven't a chance of getting back alive. For me, I'll stay right in Camden with the R.C.A.-Victor". John bid the gang goodnight, and within an hour he was killed by a Public Service bus in Camden. Maybe the Chinaman is right, "When your time comes, you go—if you are born to be shot, you won't drown".

I resigned my position as chief engineer of the broadcast station and put all my efforts to fitting out the Nautilus. All our electrical equipment had to be overhauled and new equipment had to be purchased. Only the best of equipment was obtained. In several instances, we declined to accept certain items that were offered gratis and bought a more substantial item, even though it meant the expenditure of a huge sum. Everything went along fine for me until the arrival of our Sperry Gyroscope.

I wanted to be honest in all my dealings with Sir Hubert and also with Captain Danenhower and I came right out with a statement that I didn't know a Sperry Gyro from an Auto-Gyro. I suggested one of the best Gyro experts in the Navy, Frank A. O. Blumburg, and although Frank was still in the Navy, he was obtained. We wanted the best men in each department on the ship. I then turned everything electrical over to Frank and devoted most of my time to my radio although I still had to bear a hand in Frank's department and as a side dish, I was diver's assistant, ship's secretary, paymaster and mail clerk. In addition to those few odd jobs, I was the broadcast engineer and announcer of our submarine studio, station K7XI and also was the sound engineer on the sonic depth finder made by the Submarine Signal Company.

My radio equipment was strictly Radio Corporation of America equipment. Wiseacres said that a special outfit would be necessary for the submarine but I failed to see it. But, a funny thing about my selection, I picked a transmitter similar to one used in the regular airport equipment. The receivers and the emergency transmitter were similar to the apparatus used by the Radiomarine Corporation on all their shipboard stations and cannot be beat for ruggedness and reliability. Our portable equipment was manufactured by Heintz

and Kauffman of San Francisco. The little portable set was a wonder, but the boys took along a can of naphtha for operating the engine, instead of high test gas, so, needless to say, that is the reason you did not hear from me when we were stranded on the ice floes for that memorable six days.

With all the hard luck in our venture, there were plenty of interesting and even humorous moments on board. During the Atlantic voyage, when all seemed dark, and death was facing us every minute that we ploughed along, rolling 54 degrees each way, our batteries discharged to the danger point, one engine out of commission altogether and the knowledge that it, too,



One of the interesting features of the special equipment on the Nautilus was the telescopic ice drill for getting air to the "sub" under the ice. The upper picture shows this drill extended and the lower picture shows Sir Hubert Wilkins testing the device.

would stop when the circulating water pumps ceased to function as the battery went completely dead, funny things were happening. Perhaps I should tell only the things that happened in my department so here are some of the things that I got the most "kick" out of.

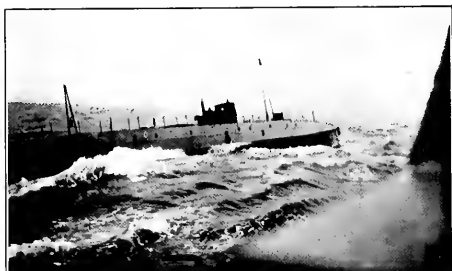
For three days, I was unable to use my transmitter due to the condition of the battery—not the battery's fault, but because the engines and generators did not function so as to charge them. For three days I dared not use my transmitter and then, when all hope was about up, Captain Danenhower told me to send out a call for help. I don't know whether I thought I could communicate with the spirits or not, but that was about the only way possible, until I struck the idea that perhaps with an oscillating receiver I could get out some sort of a call. After eighteen hours of long tuning around, I finally got in communication with the steamer Independence Hall and, readers, let me tell you this, Operator Marshall and Captain Donald MacKenzie of the Independence Hall are the best friends I have. Were it not for those two gentlemen, the crew of the Nautilus would probably be listed with the other missing seamen. The funniest message I received during those hectic hours was one broadcast by Radiomarine Station WCC at Chatham, Massachusetts. After hours of calling in vain, the operator finally said, "Nautilus—if you are not sunk—answer me on 18 meters". Talk about the letter Pat wrote to Mike, in which Pat penned, "If you don't get this letter, write and let me know".

Radio compass played an important part in our rescue by the battleship Wyoming, for the radio compass receivers on board the Wyoming and Arkansas guided them to the transmitter aboard the Independence Hall, who, like ourselves, had not had a sun sight in several days and an exact position was out of question.

Our sonic depth finder was an important factor in our actual work in the Arctic. While running along submerged, I discovered a sudden rise in the bottom which I afterward christened Ray Meyers' Hill. By watching the flashing light of the Fathometer every fifteen seconds that we were underway, I noticed the distance from the bottom was changing rapidly and lest we run smack on a submerged mountain, we stopped to look the situation over. By opening the diving door in the bottom of the submarine, we found that a large pinnacle rose up from the bottom to within twelve fathoms of our keel. Here was really some important scientific information, for previous expeditions had made soundings in this very spot and christened it the Arctic deep.

I could go on for hours explaining how our party made various records of temperature readings at different depths, and perhaps the information they are still pondering over, might tell us where the Gulf stream finally winds up, if that information means anything to anyone.

I collected information on the tricks that radio waves play and while I will not go into details, I will just say that when we shifted our position fifty or seventy-five miles, the clock changed a few hours and so did all my radio schedules for while I used Grand Meridian Time exclusively for my time in the radio shack, the meridians of longitude were only a few miles apart up in those latitudes and the skip distance seemed to vary



Picture taken from the deck of S. S. Independence Hall showing Nautilus rolling in a seaway on the North Atlantic.

with apparent time just as it would at lower latitudes. Today at 1100GMT a certain station would be in excellent communication with us—we would shift fifty or more miles east or west—and tomorrow our contact would be made two or three hours earlier or later, depending upon the direction in which we moved. This condition sort of got me in wrong with my associates ashore that found it hard to believe the data I was furnishing them was correct but it is true and I had to stay on the job 18 hours a day to find it out.

One broadcast I sent out from the Arctic was probably the most novel transmission ever made. I had station announcements sent out by Wilkins in the language of the Eskimo. Danenhower made them in French; Sverdrup in Norwegian; Stavrakov, the engineer that installed the new Chernikof Log, made them in Japanese; Emil, our cook, spoke Swedish; Doret, the Paramount Movie man, spoke in Russian and Slav; and little Jake, our mess boy, spoke in the language of the Swiss border which was a cross of German and Italian; while I told the world that they were listening to a Yank.

On our return to civilization we struck a terrific storm that took down our radio mast. This was repaired in the snug harbor of Kings Bay up in northern Spitzbergen and before venturing out again into the elements, I called the radio station at Svalbard for the weather reports. These Norwegian operators are required to know English before gaining a license but the fellow that did the examining of this operator either had a sense of humor, or he didn't know his book, for here is the weather report:

"NOW BAROMETER STADI 1005 CLOUDS ON THE SKI, ONLY ON HAF PART. THE WIND, VERY DRAWBACK—LIKE CERO AND FULL DAYLIGHT NOW. ALL FINE. THE CELCIVS (probably meaning thermometer) AROUND 0.5 DEGREES ON THE HOT SIDE."

Oh well, he did his best, just as I did my best on the Nautilus trip and as I have done my best in this article to make it interesting. If you think so, and want another page of my experiences during my twenty years as a radio operator, engineer, broadcast artist, and globe trotter, it is up to you to tell the Editor about it.

NOTE: This article is written for the Pacific Marine Review and the writer reserves all rights thereof. All or part of this article must not be used without permission of the author.—Ray Meyers.

Twenty-Five Years Ago

Some poet has said, "I looked behind to find my past, and lo, it had gone before." In witness of the truth of this idea we reprint the following progress report written in December, 1908, by our good friend, Dr. W. L. Durand, and appearing in the January, 1909, issue of *Pacific Marine Review*. With some changes in names and details, it might have been written yesterday. The last paragraph is peculiarly apropos to present conditions:

Progress During the Past Year. The past year has been marked by nothing startling or spectacular in the line of progress in marine construction. Nevertheless, progress has not been lacking in many directions, and looking back over the year as a whole a distinct advance along many lines may be noted.

With regard to fuel considered on the basis of world supply, the situation remains as during the past few years. Coal still holds the first position, with engineers ready and in many cases anxious to substitute oil as soon as and as far as financial consideration will permit. In our naval construction, however, definite steps have been taken committing us to the use or at least trial of oil for certain of the recently authorized torpedo boat destroyers. The results of these tests under all the conditions of service will be watched with the keenest interest.

In regard to prime movers, the turbine continues to demonstrate its fitness for marine propulsion, especially for demands of high speed service. It is not too much to say that the demonstrated results of the year, to refer, for example, only to the "Lusitania" and "Mauretania" and to the U. S. scout cruisers, "Salem" and "Chester," have gone far to solidify and confirm the status which the turbine has rapidly gained during the past ten years. Our naval designers, somewhat slow in admitting the practicability of this form of prime mover, are now definitely committed in its favor, not only for such types as the scout cruiser, but for the battleship and for the torpedo boat as well. This does not mean the immediate disappearance of the reciprocating engine, but rather the thorough try-out of the two types under parallel service conditions, as between the "Chester" and "Salem" on one hand and the "Birmingham" on the other, and thus the more definite determination of the points of comparison and difference and the special conditions under which each form of prime mover may presumably claim definite superiority.

Some progress has also been made in the development of combination designs of reciprocating engines and turbines the former being intended for moderate or slow speeds and both for full power development. In the latter case, the reciprocating engine works over the range for which it is best adapted, while the turbine takes the exhaust of the engine and carries the expansive use of the steam on to points far beyond those

practicable with the engine alone. Such combinations are intended to provide a certain elasticity in operation and certain advantages possessed by the reciprocating engine for moderate and for fluctuating speeds, while at the same time insuring the special advantage of the turbine for full power and the highest speeds.

In the line of special forms of prime mover for particular purposes, the internal combustion engine, with suction gas producer has made definite, though moderate, progress. The year has witnessed the placing in service, especially in Europe, of several craft of moderate or small size for harbor or inland service, and fitted with this type of propulsive machinery. Builders of machinery of this type have made some progress in standardizing their units, and there are now on the market marine gas producers of standard design and of capacities ranging from 25 to 100 horsepower.

In the realization of speed, the year has given us definite achievement. The "Lusitania" and "Mauretania" have cut the trans-Atlantic record down below the five-day mark, with a day's average speed of 25 knots and upward. The U. S. scout ships "Salem" and "Chester" have registered trial speeds of 26 knots, and thus made a new record for warships of over 2,000 tons displacement. In the class of torpedo boats, English and German destroyers of 600 to 800 tons displacement have attained speeds of 33 and 34 knots, while the "Swift," a British enlarged destroyer design, is intended for 36 knots and is reported to have even exceeded this speed.

In the advance in size, the year has likewise witnessed the definite placing in service of the "Lusitania" and "Mauretania" with length of 760 feet and gross tonnage of 31,000, while at Harland and Wolff's yard preparations have been made for the new White Star steamers, "Olympic" and "Titanic" which are reported to be designed for a length of 860 feet and a gross tonnage of 42,000. In warship practice, the all-big gun warship of about 20,000 tons displacement has now acquired definite status as the typical unit, and the leading naval powers are adding to their fleets such units as rapidly as budgets and appropriations will permit.

In the freighter type, little change has occurred. The large trans-Atlantic freight steamers are still represented by vessels of 20,000 gross tonnage and upward, while the large number of boats of moderate capacity from 10,000 to 15,000 gross tonnage still hold their own. On the Great Lakes the largest ships are showing lengths of 400 feet and upward and with capacity of 10,000 to 12,000 tons dead weight cargo. Some progress has been made in the general freighter type in improving and standardizing equipment for handling cargo and in improvements in arrangements of hold and machinery spaces with special reference to the rapid and effective loading and unloading of the cargo.

The industrial conditions of shipbuilding during the past year have presented little of encouragement. With the entire country suffering from acute industrial depression the shipbuilding interests have naturally touched low ebb. With present signs of returning activity in many lines, the influence on shipbuilding interests does not seem thus far to be strongly marked, although optimists may doubtless find in present conditions and future probabilities the promise of better times to come, and in the hope of realization we may approach the unfolding of a new year.

Correspondence

OVERSEAS AIR TRANSPORT

Dear Editor,

Your editorial in the November issue under "Progress in Overseas Air Transport" is of timely value, but it is doubtful whether the attention will be given that it so well deserves. Recent disasters to large airships of the rigid type have created in the lay mind an extremely unfavourable impression as to the reliability of such craft. Digesting the 900 odd pages of the "Akron" enquiry, one is forced to the conclusion that the large unbalanced forces associated with certain types of storms must be avoided by airships.

Of recent years there have been four major airship disasters attributed to storms. However, only in the "Akron's" case has the storm condition been adjudged the primary cause. The other airships lost were as follows: "Dixmude", "Shenandoah", and R101. In the case of the first named, the true evidence was never accurately determined. It was, however, assumed that she was struck by lightning and was therefore destroyed in the air by fire. The Shenandoah broke up in a line squall due to lack of structural strength. The R101 grounded due to loss of buoyancy derived from a torn gas cell, being finally destroyed by fire. In each case recited, the storm condition was not a primary cause of the loss of the ship, but the loss of the "Akron" was attributed primarily to storm conditions, as the evidence indicated no structural damage prior to her grounding. This brief analysis shows only one airship out of the four lost purely due to the elements.

Adequate structural strength with reasonable payload, using helium as a lifting force is possible in modern large volume ships, but certain types of thunderstorms are still apparently to be feared. These conditions fortunately prevail only at certain localities, in more intensity than in others.

This being the case, to ensure reasonable safety from conditions such as these, the commercial future of airships can lie only on three or four routes, i.e., presumably the South Atlantic to South America, San Francisco to Japan (via Honolulu), or Vancouver to Japan; Japan to be eventually connected up to the Australian air route (say at Bangkok, Siam) by flying boats. No serious minded person can visualize the North Atlantic route. For one thing, apart from extremely unstable weather conditions, it is now possible to receive a reply from England to Ottawa in nine days during the summer via ships like the Empress of Britain and the air service up the St. Lawrence from Belle Isle. It is admitted that this service is not yet perfected but will be so before any further airships are built. No one can consider the Greenland route except for stunt flights on selected occasions, and in the winter it is absolutely out of the question together with the rest of the North Atlantic. If it is planned to go from New York via the Azores or Bermuda to Europe, it would take so long that one might as well go in the Europa or Rex. I think

the North Atlantic air route has been too lightly talked about as being in any way practical.

In regards to the cost of operating airships, this cannot be figured on a cost per mile basis against surface ships, for the precise reason that the longer the haul the cheaper will this become in the case of the airship. Taking into consideration maintenance, depreciation charges, etc., only experience will determine the real cost. It is extremely doubtful whether the "Graf Zeppelin" actually pays, running as a single unit. A fleet of similar ships would quite likely swing the issue to a profit making enterprise.

Yours very truly,

S. H. PHILLIPS

Aeronautical Engineer (Airships), A.M.A.S.M.E.

Let's Get Going

(Continued from Page 4)

hour-week basis. In other words, the shipyard could and would work two shifts of 8 hours on a 40-hour-week basis, which would correspondingly increase both the earnings of the men and the productive capacity of the plant."

The art of shipbuilding employs a number of skilled crafts, and is perhaps more dependent on the skill that comes from long training of eye and hand than is any other major American industry. Successful management of a shipbuilding plant consists largely in coordinating the contact of these skilled crafts with a properly adjusted flow of prepared materials. Any dislocation or interruption of schedules is felt throughout the plant. It is hard for anyone who has never worked in a shipyard and who is unfamiliar with the complications of shipyard schedules to visualize the confusion into which such schedules are thrown by the introduction of three different scales applied simultaneously to the same men as the details on which they are working go to this job or that.

This confusion has resulted in slowing up all work with the net result that less men are being employed on the 36-, 32-, 30-hour week plan than would be employed on the uniform 40-hour week plan, and these fewer men are getting less per week. This not only slows up work in shipyards, but reduces purchasing power of employers and employees in that industry. It also directly lowers the purchasing power of all industries supplying machinery and equipment to the ships being built. Further than that, this lessened purchasing power indirectly affects a reduction in the market for the produce of every American manufacturing plant and every American farm.

By granting this demand of the shipbuilding industry for a uniform 40-hour week on all work, three desirable ends will be attained:

1—The whole shipbuilding program will be speeded up.

2—More American craftsmen will be put to work in the shipyards.

3—Each American craftsman working in the shipyards will have a fatter pay envelope.

So "LET'S GET GOING" on a real shipbuilding program.



Marine Equipment

ELECTRICAL DEVELOPMENTS ~ PAINTING MACHINE
NEW COMPRESSOR DRIVE ~ PIPE CUTTING MACHINE

Marine Electrical Developments for 1933

By H. C. Coleman

Marine Electrical Engineer, Westinghouse Electric & Manufacturing Co.

Looking back over the shipbuilding activity during the year 1933 we see a marked change in the trends as compared with those of the past few years. During 1930, 1931, and most of 1932, the greater part of our shipbuilding facilities were kept busy with the construction of a considerable number of large combination passenger and cargo vessels constructed with the help of Government loans made available by the Jones-White Merchant Marine Act of 1928 in connection with mail contracts, as well as an appreciable number of smaller craft for coastwise, river and harbor work. A relatively small portion of the country's shipbuilding capacity was being used for naval construction. In the latter part of 1932 and the first half of 1933, the shipyards delivered the remainder of the large vessels contracted for under the Merchant

Marine Act. In the same period, there was a distinct falling off of orders for small craft. This left the shipyards with very little work in hand.

The launching of the new Naval building program by the new Administration has changed the entire shipbuilding trend during the last six months of 1933 from one of mainly merchant marine construction to one of predominantly Naval and other Government vessels. Thus, the Government building program has brought forth a great deal of activity in the shipbuilding and marine equipment field at a time when it was very badly needed because of the great reduction in commercial shipbuilding activity.

The last one of the large combination passenger and cargo vessels built under the mail contract provisions, S.S. Washington, was delivered to her owners, the United

States Lines, early in May, and sailed on her maiden voyage May 10, 1933. While this vessel is a sister ship of the S.S. Manhattan which has made such an enviable record during the past year, a review of some of the electrical features of this outstanding American vessel seems fitting. Electrical power is utilized throughout the vessel for all sorts of operations and services. For supplying the power there are four 500 Kw., 250 volt, Westinghouse direct current turbine generator sets. A 75 Kw. Diesel driven generator and a 200 ampere capacity battery are provided to supply power in an emergency in case of failure of the main auxiliary power plant. An indication of the extensive use of electrical power may be gained from the fact that this ship carries, exclusive of stateroom fans, more than 250 electric motors with a total horsepower of about



S.S. Manhattan (shown above) and S.S. Washington, twin largest liners built in an American shipyard, have each a connected electric load of 3600 horsepower in motors besides lighting, heating and cooking loads.

3600, most of which were furnished by the Westinghouse Company.

During 1933 two new self-propelled pipeline dredges, the *Sainte Genevieve* and the *Grafton*, were delivered by the builders, the Dravo Contracting Company, Pittsburgh, to the United States Engineer Corps for service on inland waterways. Power for operation of these dredges is furnished by oil-fired steam boilers. Electric drive is used for the main dredging plant as well as for most of the auxiliaries.

The dredging power plant consists of a 1200 kilowatt direct current type geared turbine generator set comprising a 1000 kilowatt, 250 volt main generator and a 200 kilowatt, 250 volt auxiliary unit. In addition, there are provided two 75 kilowatt, steam turbine driven generators for supplying small auxiliaries as well as a 15 kilowatt and a 2 kilowatt unit for standby use. The 20-inch dredge pump is driven by a 1200 horsepower Westinghouse motor which is fed from the 1000 Kw. generator and designed to deliver its full horsepower rating at any speed between 200 and 250 revolutions per minute.

The most interesting feature of this installation is the special control of the dredge pump and its generator. By a special combination in the generator field design, characteristics are provided such as to cause the pump motor to inherently deliver additional power when a plug attempts to form in the discharge line. Thus, the machinery provides for automatically clearing the discharge line under such conditions and restoring normal operation as soon as the difficulty is overcome, without any attention or adjustment by the operator.

The 200 kw. generator supplies power to the 225 horsepower cutter motor, and is endowed with characteristics similar to those described for the main generator which feeds the pump motor, so as to limit the maximum torque which can be applied to the cutter machinery.

These dredges are similar in construction to the dredge "Dundee", which was delivered in 1932, except that the pumping capacity is somewhat greater and electrically driven cutters are used instead of the dust pan type of suction head.

The increased Naval building program has resulted in considerable development along electrical lines for Naval vessels of all kinds. Most important in this development

has been the utilization and application of alternating current equipment to a far greater extent than has ever been attempted before. Because of very stringent weight and space limitations, remarkable progress has been made by the use of structural materials, welding, and aluminum castings in reducing weight and in obtaining the maximum rating in surprisingly small space allotments. Research work and more scientific use of improved materials have made possible surprising accomplishments, particularly in connection with auxiliary generators and switchboard equipment. Likewise, a great deal of development work has been carried out in the application of alternating current motors and control for the various auxiliary requirements on Naval vessels. These developments have brought forth many interesting problems and results indicate that the use of alternating current auxiliary machinery will be greatly extended not only in the Navy, but in the merchant marine in the near future.

Looking forward to the year 1934, indications are that, during the first half of the year at least, our major efforts will be required in connection with the large number of vessels to be built for the Navy and the Coast Guard. With the general improvement of business and shipping, it is to be expected that orders will be placed for modern cargo vessels.

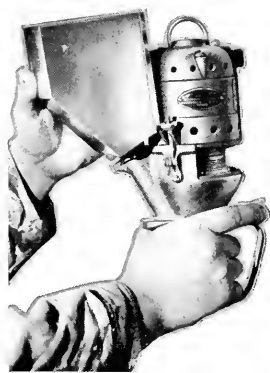
There has been very little construction in this class of vessel during the past fifteen years, and if we are to compete satisfactorily with other nations, it will be necessary for us to build an appreciable number of modern cargo ships.

New Airless Painting Machine

The introduction to the market of the new Norris Electrical (airless) Painting Machine will greatly advance the progress of mechanical painting.

This self-contained electrical unit (easily held in the hand) utilizes centrifugal force in applying the paint and other material, rather than the customary air pressure method.

Foremost in the superior characteristics of this machine is its ability to greatly reduce maintenance and industrial costs; and its rapid



The Norris electrical painting machine.

application of paint and enamels makes it possible to complete a job five times faster than a brush.

Paint is forced out in a perfectly even, fan-shaped spray, which, by instantaneous adjustment of the distributor, may be varied from less than one to eighteen inches in width. The cut-off on all four sides can be held sharp at the option of the operator, making it possible to paint up to door frames, picture mouldings and base-boards with great accuracy and without splattering these trims. This machine paints stencils perfectly.

The consumption of paint can be regulated to the necessary quantity by means of a paint control valve at the base of the machine. This control allows a one or two coat finish as the case demands and it provides against waste of material.

There is no paint fog or dirt to endanger the health of the operator or to inconvenience anyone who may be present in the room where the machine is being used.

Because of this lack of paint fog and the ease and neatness in which a job can be done it is no longer necessary to hold up commercial or industrial operations as the work can be accomplished without disrupting the employees.

Apart from the painting of walls, ceilings and general maintenance work, including the use of all kinds of enamel and paint, this machine lends itself to a variety of uses pertaining to the manufactured product, such as painting of barrels, application of rubber solution to fabrics.

The Norris Electrical Painting Machine was invented by E. O. Nor-

ris and is a product of the Electrical Painting Equipment Co., Inc., 247 Park Avenue, New York, N. Y.

Largest Elevator on Shipboard

A special automobile elevator, the largest and most unusual ever projected for ship use, is being built by Otis-Pifre in Paris. This elevator will be installed in the new French liner "Normandie", 72,000-ton ship that will go into service in 1935, according to an announcement by the International Division of the Otis Elevator Company.

With a lifting capacity of 11,000 pounds, this elevator will be by far the heaviest duty elevator ever to be installed in a commercial ship. In addition it will have a radically new feature in a turn-table that will permit the easy storing of automobiles in the hold. This turn-table will be manually controlled and will operate on the 22-foot long elevator platform.

This automobile elevator will operate at a speed of 100 feet a minute, and will have the same features as modern building elevators, micro self leveling and automatic push button control.

Unibloc Diesel and Gas Engine Compressors

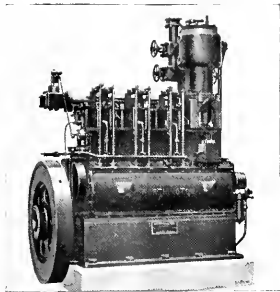
To meet the demand for compact engine-driven refrigeration compressors, Worthington Pump and Machinery Corporation, Harrison, N. J., has introduced a line of equipment designated as "Unibloc" Diesel and Gas Engine Compressors.

In these units, a compressor cylinder is mounted directly on the base of a standard Worthington vertical four-cycle Diesel or gas engine. The piston of one power cylinder is replaced by a cross head, connected by a piston rod to the compressor cylinder situated directly above.

High efficiencies are claimed for these units because of the elimination of mechanical friction, the placing of the suction valve in the top of the piston, and the adaptability of the well-known Worthington Feather Valve to higher speeds of operation. The valve is operated automatically by the suction and discharge pressures of the com-

pressor, the strips "breathing" between a ground face and a curved guard. With this valve it is possible to maintain normal engine speeds.

Lubrication of the compressor piston and stuffing box is accomplished by a mechanical force-feed lubricator, driven directly from one of the engine valve push rods. These compact units operate on cheap fuel oil or gas, and have already established some significant records for low-cost operation. They are especially well suited to the requirements of ice plants where power costs are a large item. The objectionable features of belt-driven installations are eliminated, including the cost of belt maintenance and replacement. Floor space requirements are reduced to one-half.



Worthington Unibloc engine drive compressor.

Unibloc compressors are available in a complete range of sizes for handling all types of refrigerants. In the larger units, the number of compressor cylinders is increased to obtain the required capacity.

Electrode for Welding Cast Iron

An electrode for welding cast iron by the shielded arc process is announced by The Lincoln Electric Company, Cleveland, Ohio. The electrode, known as "Ferroweld" not only simplifies welding procedure on cast iron but produces a weld with greater strength and ductility than the cast iron.

"Ferroweld" has a steel core surrounded by a heavy flux coating which protects the arc from gases injurious to the weld which are

present in the atmosphere. One of the outstanding advantages claimed for "Ferroweld" is the remarkably low heat with which it can be used, thus reducing the possibility of cracking. The electrode is manufactured in only one size— $\frac{1}{8}$ inch—and is used with approximately 80 amperes of current.

Welding is done intermittently, not over a three-inch bead being laid down at one time. As each bead is welded it is peened lightly, thoroughly cleaned and allowed to cool somewhat before the next bead is deposited. Due to the extremely low current with which it is used the hardening effect ordinarily present along the line of fusion is materially reduced. Thus the weld is more machinable than most cast iron welds.

Recently an interesting repair job was made on a punch press ram with "Ferroweld". This ram is about 22 inches wide and approximately $1\frac{1}{2}$ inches thick at the break. The press in which the ram is used is in constant use for punching holes as large as 7 inches in diameter in 10 gauge steel. The ram was broken in operation at a point about the middle of its length and just at the top of the heavy shoulder enclosing the punch holder. In order to repair the ram the part was Vee'd out, with a Vee about two inches wide at the back, leaving approximately one-eighth of an inch of metal at the bottom of the Vee. The part was then tack welded at the inner ends of the Vee. Short beads were laid intermittently along the line of the break, first on one side of the ram and then on the other. The outside flanges of the ram which fit in the guides were ground down after welding. There were no signs of cracking or pulling away in the weld. No checks were present.

This ram has been in use for several weeks after welding and is operating as well as when new.

Trade Literature

Ingersoll Steel and Disc Co., a division of Borg-Warner Corporation, Chicago, Ill., offers a leaflet illustrating various uses for Ingoclad, a mild carbon steel clad with stainless. The folder shows such widely diversified applications as still bottoms, milk storage tanks, yeast culture tanks, soda fountains, cooking utensils and shower bath compartments. Copies may be had on request.

Oxweld Pipe Cutting Machine Introduced

Another new cutting machine has been announced by The Linde Air Products Company, 30 East 42nd Street, New York, as an addition to its Oxweld line of apparatus, known as the Oxweld Pipe-Cutting and Beveling Machine. It consists of a center rod with three spreading arms which press against the inner wall of the pipe, holding it in position, with an arm supporting a blowpipe that can be adjusted to the desired angle of the cut. The blowpipe and arm rotate without the use of a crank for quick centering of the device, and by means of a crank when doing actual cutting.

This machine will take almost any hand-cutting blowpipe, is readily portable, and its operation is extremely simple. Once centered in the pipe, the operator merely turns



Oxweld pipe cutting and beveling machine.

the crank, causing the blowpipe to rotate evenly around the pipe, making a clean, machine-like cut. Whenever large quantities of pipe are to be cut and beveled, this machine will save time, money and trouble.

Book Reviews

SAN FRANCISCO: A PAGEANT. By Charles Caldwell Dobie, illustrated by E. H. Suydam. 351 pages, 37 full-page illustrations and numerous sketches. Published by D. Appleton-Century Company, New York. Price, \$5.00 net.

It is difficult, in a short review, to do anything like justice to a book such as this. The author is a native San Franciscan who writes with great charm and feeling of the city he has known and loved since childhood. The artist came to San Francisco to draw the illustrations for this book, lost his heart to the city, and will probably never be completely happy living anywhere else.

As Dobie, in his foreword, says of these illustrations: "The stranger to San Francisco will find authentic pictures of the city, vitalized by the interpretations of a consummate artist. The San Franciscan will find familiar scenes incredibly freshened by an unhackneyed touch."

The glamorous highlights of the city's romantic history, and the descriptions of its pioneer, mid-Victorian, and modern aspects, are in-

terwoven to make a tapestry of blended tints and flavors reproducing with great verisimilitude the charm which is San Francisco.

Everyone to whom we have shown this volume has fallen immediately under its spell. Oh, what's the use—go buy yourself a copy!

"Merchant Vessels of the United States, 1933," popularly referred to as the "Blue Book of American Shipping," has been released by the Commerce Department's Bureau of Navigation and Steamboat Inspection.

The new volume contains the name of every documented merchant vessel and yacht of 5 net tons and over in the United States, approximately 29,000, with such descriptive data as each vessel's official number, gross and net tonnage, dimensions, material, horsepower, homeport, year and place of building, service, and number of men composing the crew, together with the name and address of the owner.

Steam, motor, sail, unrigged vessels and yachts are listed separately, in the alphabetical order of their names. The type of engine and

kind of fuel used by the steam and motor vessels are indicated. Vessels equipped with radio transmitting apparatus or radio compass, or both, are marked, as are those which are classed by the American Bureau of Shipping.

The volume contains the name of every documented merchant vessel and yacht which was lost, abandoned, sold to aliens, or removed from the American merchant marine, for any reason, during the fiscal year.

All shipyards building vessels of 100 gross tons, and over since 1900 are listed with the names and description of the vessels built by them during that period. There is also a register of owners of vessels of 100 gross tons and over with the name and other pertinent information concerning each vessel of that class owned by them.

There are complete lists of oil-burning steamers, vessels measured under Panama and Suez Canal rules, vessels belonging to the Navy, War, Treasury, Commerce, Labor, Interior, and Agriculture Departments, the Panama Canal and Panama Railroad Company, and vessels owned in the Philippine Islands.

As a result of the International Radio Conference of 1927, the principal maritime nations of the World have joined in the adoption of a uniform radio call and visual signal system effective January 1, 1934, which system involves the use of one set of letters to represent both the visual and radio call letters on each vessel. This edition of "Merchant Vessels of the United States" lists these new letters at this time.

A comprehensive chart of distances, in nautical miles, between the principal American and foreign ports completes the publication.

Trade Literature

"A Century of Progress" in Full Authentic Colors. The American Asphalt Paint Co., makers of VAL-DURA Products, announce that their new brochure "COLOR AND PROTECTION" is now ready for distribution. This is a book of authentic water-color illustrations of "A Century of Progress".

Having been awarded the contract to furnish and apply the paint for all major World's Fair buildings (inside and outside), this com-

pany is especially interested in making their book an authentic record of the progress of color in industry.

The Fair Management has credited this book as being the only reproduction of the genuine flat color effects as designed by the late Joseph Urban. It is printed in 13 water-colors, silver and gold and contains 35 of the finest reproductions of the actual buildings and actual colors yet created.

You can obtain a copy of this beautiful 16-page souvenir book free by writing, on your company letterhead, to the American Asphalt Paint Co., 43 E. Ohio Street, Chicago, Illinois, and mentioning Pacific Marine Review.

Republic New Flow Meter Catalog. With a radical improvement in design and construction which stresses the "cartridge sealed element" as a new principle in meter design and assembly the Republic Flow Meters Company, 2240 Diversey Pkwy., Chicago, has issued an informative new 24-page catalog, No. 700. This new bulletin describes the principle of the electric resistance type of flow measurement, and presents a completely illustrated description of the cartridge sealed element principle of instrument mounting wherein each actuated mechanism is mounted individually as a separate, sealed element which may be mounted or removed from the back of the instrument panel without disturbing any other element.

Fully illustrated, this catalog shows the modern reading instruments having the charts, indicators and integrators mounted nearly flush with the front of the instrument panel. Much information is presented that will be of practical value to engineers confronted with the problems of flow measurement.

N. A. Strand & Co., Chicago, Ill., have recently issued a new 64-page catalog containing description and illustration of their new ball-bearing line of flexible shaft machines. The book shows many types and sizes, with several additional attachments which should prove of great value in the manufacturing industry. The catalog is well printed on heavy coated paper, and is very worth the while of manufacturers interested in this equipment. A copy may be had on request.

International Nickel Company, Inc., New York, N. Y., has issued an attractive booklet describing castings of monel metal, nickel, and high nickel alloys. The folder is well illustrated and graphically written. It may be had free on request by anyone interested.

Link-Belt Company, Chicago, Ill., are offering a finely illustrated catalog of their flexible shaft-couplings. Although three types are tabulated, special emphasis is put on the type "RC", which employs Silverlink roller chain for flexibly connecting the two-toothed coupling halves.

Port Notes

Santa Barbara, Calif.—Application has been made by Santa Barbara County, Santa Barbara, Calif., for War Department permission to construct an extension of an existing pier for a distance of about 208 feet, making the total pier 318 feet long, into the Pacific Ocean at Goleta Sand Spit, about one mile westerly of Moore's Landing, and about 10 miles westerly of Santa Barbara, Calif. It is proposed that two adjacent wharves be dismantled and the material salvaged therefrom used to make the extension above referred to. Drawings showing the location and type of construction proposed may be seen at the offices of the U. S. Engineer, 751 South Figueroa St., Los Angeles, or at the office of the County Engineer, Santa Barbara, Calif., V. L. Peterson, Lieut.-Colonel, Corps of Engineers, District Engineer.

Merritt-Chapman & Scott Corp., 720 Wilmington Road, San Pedro (San Pedro 2880) has been awarded the contract by the Pacific Western Oil Co. (operator of the Spalding lease) at \$23,351 for the construction of an extension to the oil pier at Ellwood. Construction will involve steel piling with wood plank-like similar to other pier construction at this field. Work will start at once.

Newport Beach, Calif. — The \$640,000 harbor bond issue carried at the Orange County election, December 19. The federal government will provide an additional \$1,195,000. The project calls for the extension of the two jetties at the harbor

entrance; the west one, 760 feet; the east one, 920 feet. The entrance channel will be dredged 500 feet wide, and 20 feet deep at low tide, this depth to be continued to the county-owned frontage and dock at the Arches. In a channel 200 feet wide, 35 acres fronting the Newport Harbor Yacht Club will be dredged to the depth of 15 feet at low tide to provide anchorage for pleasure craft. All other harbor areas will be deepened to 10 feet to eliminate shoals and other hidden obstructions. A turning basin of from 600 to 1200 feet wide will be provided. R. L. Patterson, city engineer of Newport, has estimated the amount of work involved as follows: dredging, 7,692,000 cubic feet; 190,000 tons of rock.

Pearl Harbor, T.H. — Hawaiian Dredging Co., Honolulu, submitted low bid to the Bureau of Yards and Docks, Navy Department, Washington, D.C., on December 20, at \$3,575,000, or 65c per cubic yard, for dredging and the disposition of material to widen and straighten the channel at the 14th Naval District, Pearl Harbor. (Spec. 7337).

Hamilton Field, Calif.—Bid for dredging a channel and turning basin in San Pablo Bay, at Hamilton Field, were opened by the Constructing Quartermaster. Hamilton Field, Dec. 14. Bids were taken as follows:

- (1) Lump sum;
- (2) Dredging to five feet in place of seven;
- (3) Excavation by bucket; dredging 337,000 cu. yds.;
- (4) Excavation by bucket; dredging 309,000 cu. yds.;
- (5) Dredging by hydraulic, per cu. yd. place measurement;
- (6) Dredging by bucket, per cu. yd. place measurement.

The bids were:

Standard Dredging Co., Central Bldg., Los Angeles, (1) \$37,070.00, (5) \$11.

Dutton Dredging Co., San Francisco, (3) \$28,475.00, (4) \$23,175.00; (6) \$06.

Franks Contracting Co., (3) \$30,300.00, (6) \$09.

Ralph E. Wooley, Honolulu, was awarded contract by the Bureau of Yards and Docks, Navy Department, for the construction of facilities building at the Navy Yard (Spec. 7074) at a cost of \$143,700.



American Shipbuilding

Three Firms to Build Nine Patrol Boats

Contracts were awarded recently to the Marietta Manufacturing Co., Point Pleasant, W. Va.; the Manitowoc Shipbuilding Co., Manitowoc, Wis.; and the Lake Union Drydock and Machine Works, Seattle, Wash., for the construction of three 165-foot U.S. Coast Guard patrol boats at each yard. The total amount involved in building the nine vessels is \$2,181,789. Of this the Marietta Manufacturing Co. will receive \$248,210; the Manitowoc Shipbuilding Co., \$242,800; and the Lake Union yard, \$236,253, per boat. These craft will have a 25'3" beam, will be 13'2" deep, and will draw approximately 7'. They will be of the twin-screw type, propelled by two 650 horsepower Winton Diesel engines. The total displacement of each vessel will be approximately 300 tons, and the required speed is 16 knots. Delivery is expected to be made in 300 days.

Berg and Manitowoc Submit Low Bids

The Berg Shipbuilding Company, Seattle, submitted low bid (\$377,000—350 days) on bids received November 24 by the Bureau of Lighthouses, Washington, D.C., for the construction of the tender, Hollyhock. On the same day, the Manitowoc Shipbuilding Company, Manitowoc, Wisconsin, submitted low bid for constructing the tender, Tamarack (\$236,417—290 days).

The Hollyhock, to be used by the Milwaukee Lighthouse District, will be twin-screw, steam propelled, 174-feet long, with a displacement tonnage of 770. She will be equipped with oil-burning boilers, and engines of 1,000 horsepower. Bids received on her construction and delivery at Milwaukee were as follows:

Days

| | | |
|-----------------------------|---------------------|---------------|
| Berg Shipbuilding Co., | Seattle, Wn. | \$377,000—350 |
| Moore Drydock Co., | Oakland, Calif., .. | 385,000—335 |
| Wallace Bridge & Const. Co. | Seattle, Wash., .. | 399,000—360 |
| Pusey & Jones Corp., | Wilmington, Del.... | 408,000—295 |

Manitowoc Shipbuilding Co.,
Manitowoc, Wis. 414,640—290
Consolidated Shipbuilding Co.
Morris Heights,
N. Y. 434,855—360

The Tamarack will be used by the Lighthouse Station at Detroit, Michigan. She is to be a single-screw, Diesel-electric propelled vessel; 122.2 x 29 x 10 feet, with a displacement tonnage of 400. She will be capable of a speed of 10 m.p.h. and will develop 450 motor shaft horsepower. Bids received on her construction were as follows:

Days

| | | |
|--------------------------------|----------------------|---------------|
| Manitowoc Shipbuilding Co., | Manitowoc, Wis. | \$236,417—290 |
| Consolidated Shipbuilding Co., | Morris Heights, N.Y. | 283,201—360 |
| U. S. Navy Yard, Boston, Mass. | (Estimate) | 267,847 |

Todd Shipyards Corporation Declares Dividend. Directors of the Todd Shipyards Corporation, New York, at their December meeting declared a quarterly dividend of 25 cents per share, payable on December 20 to stockholders of record at the close of business on Dec. 5.

Midland Barge Co. Low Bidder on Two

The Midland Barge Co., Midland, Pa., submitted low bid to the U. S. Engineer at Chicago, Ill., for the construction of two open-deck, steel barges, 40'x18'x3'. The barges are to be delivered afloat at Joliet, Ill.

The S. S. Rappahannock, recently purchased by the Luckenbach Steamship Company and now being overhauled prior to entry in their intercoastal service, will be fitted with a Gyro-Compass, two bearing repeaters, and course recorder, according to the Sperry Gyroscope Company, manufacturers of marine and aeronautical equipment.

Marietta Manufacturing Company Announces Completions. According to a statement received from the Marietta Manufacturing Company, Point Pleasant, West Virginia, they completed during the year 1933, the following:

Ten—175'x26'x11' Standard 1000-ton Steel Coal Barges, West Kentucky Coal Company, Paducah, Kentucky.

One—84'x20'x5' Steel Bulk Oil Barge of 50,000 gal. capacity for Sterling Oil Company, St. Marys, West Virginia.

Four—132'x35'x10' Steel Covered Cargo Barges of 850 tons capacity for stock account.

Two—Floating Boat Houses—U. S. Engineer Office, Huntington, West Virginia.

Accompanying the above statement was a letter from which we quote as follows: "We consider ourselves fortunate that we have been able to keep our plant fairly busy during the past few years, and that we have a fair amount of work booked ahead."

Caisson for Pier No. 6, San Francisco-Oakland Bay bridge, ready for towing to its site near Yerba Buena Island. This huge structure was constructed at Moore Dry Dock Co.'s yard at Oakland, Calif.



Progress of Construction

The following Report Covers the Shipbuilding Work in Progress at the Leading Shipyards of the United States as of December 1, 1933

Pacific Coast

BERG SHIPBUILDING CO.

foot of 26th Ave., N. W.

Seattle, Wash.

NEW CONSTRUCTION:

The building of the lighthouse tender **Hemlock** for the United States Bureau of Lighthouses to be used in the Alaska service. This is a twin screw, steel steamer 174' 6" in length; TE engines, 1000 H.P., WT boilers. Keel was laid April 27, 1933, and no dates have as yet been set for launching and delivery.

BETHELEHEM SHIPBUILDING CORPORATION, LTD.

(Union Plant)

San Francisco

DRYDOCK, PAINT, MISCELLANEOUS: Tug F. A. Douty, SS. Virginia, SS. Richmond, SS. Point Lobos, SS. Antigua, SS. Napa Valley, SS. Adm. Laws, SS. California, SS. President Garfield, SS. Malolo, SS. Point Palmas, SS. Halo, SS. Talamanca, MS. Pegasus, Dredge San Joaquin, SS. Admiral Laws, SS. Lake Galewood, SS. Maunalei, SS. Hegira, SS. Ruth Alexander, SS. Admiral Cole, U. S. Engr. dredge Absecon, SS. President Van Buren, MS. Silverpalm, Santa Fe barge No. 8, SS. S.C.T. Dodd, MS. Olinda, SS. Chiriqui, Lightship No. 70.

ENGINE AND MACHINERY REPAIRS: SS. President Madison, SS. President Pierce, SS. Lena Luckenbach.

GENERAL ENGINEERING AND DRYDOCK CO.

Foot of Fifth Avenue

Oakland, Calif.

DRYDOCK, PAINT, MISCELLANEOUS: Standard Oil Barge No. 5, SS. Mana, SS. Surf, SS. Dist. of Columbia, MS. Santa Monica, SS. Midway, yacht Hermit, SS. Golden Peak.

ENGINE AND MACHINERY REPAIRS: SS. Santa Ana, U.S. General Frank M. Cox, Tug Arabs.

LAKE UNION DRYDOCK & MACHINE WORKS

Seattle, Wash.

NEW CONSTRUCTION: Hull No. 102, no name, U.S. Coast Guard

patrol boat; estimated keel laying, February, 1934; estimated launching, April 15, 1934; estimated delivery, Sept. 20, 1934. Hull No. 103, no name, U.S. Coast Guard patrol boat; estimated keel laying, February, 1934; estimated launching, June 1, 1934; estimated delivery, October, 1934; Hull No. 104, no name, U.S. Coast Guard patrol boat; estimated keel laying, April 16, 1934; estimated launching, June 15, 1934; estimated delivery, Nov. 1, 1934; Sea Boy, tuna fisherman, for the Franco-Italian Packing Co., nearing completion; estimated delivery, early in 1934.

LAKE WASHINGTON SHIPYARDS

Houghton, Washington

(Reported through Dept. of Commerce, Washington, D.C.)

NEW CONSTRUCTION: One passenger and cargo motorship, 1400 gross tonnage, for Northland Transportation Company.

THE LOS ANGELES SHIPBUILDING & DRY DOCK CO.

Los Angeles Harbor

San Pedro, Calif.

DRYDOCK, PAINT, MISCELLANEOUS: SS. Cascade, MV. Velma, MV. Innaren, SS. La Purisima, SS. Golden Tide, SS. Diamond Head, SS. Catwood.

THE MOORE DRYDOCK CO.

Oakland, Calif.

NEW CONSTRUCTION:

Caisson No. 3, known as Hull No. 184, was launched November 17, 1933, at 11 A.M. This constituted the lower section of the complete caisson, known as the Cutting Edge. Size 192x92x17 feet. After launching this Cutting Edge was towed into position for erection of waling, struts, timber and cylinders, manufactured to the account of the Transbay Construction Company, contractors for the construction of pier for the westbay crossing Oakland-San Francisco Bay Bridge.

Cutting Edge No. 5, known as Hull No. 185, was launched December 1, 1933, at 11 A.M. Size 127x57 x13 ft. 6 in. After launching this cutting edge was towed into posi-

tion for completion of erection of waling, struts, cylinders and timber to a height of 60 feet. This was also manufactured to the account of the Transbay Construction Co.

DRYDOCK, PAINT, MISCELLANEOUS: Crowley's Barge No. 2, SS. Santa Elisa, Barge Ajax, SS. Lebee, SS. Dauntless, SS. Richmond, SS. Santiam, Pilot Boat California, SS. Willmoto, SS. Arizonian, SS. Dakotan, SS. Columbian, motorboat Sutter, Lighthouse Tender Lupine, SS. Richlube, SS. Georgian, motorboat Yuba, SS. Golden Dragon.

ENGINE AND MACHINERY REPAIRS: SS. Point Arena, SS. Pennsylvanian, SS. Montanan.

PRINCE RUPERT DRYDOCK

AND SHIPYARD

Prince Rupert, B.C.

DRYDOCK, PAINT, MISCELLANEOUS: 10 ship repair jobs; 16 commercial jobs.

THE PUGET SOUND NAVY YARD

Bremerton, Washington

NEW CONSTRUCTION: Astoria (heavy Cruiser No. 34), keel laid September 1, 1930; Worden (Destroyer No. 352), keel laid December 29, 1932; Cushing (Destroyer No. 376), and Perkins (Destroyer No. 377), building under provisions of National Industrial Recovery Act.

DRYDOCK, PAINT, MISCELLANEOUS: Lexington, Tennessee, Louisville, Salt Lake City, Milwaukee, Mahopac, Tatnuck, Swallow, Challenge, Wando, Aroostock, Jason, Kanawha Kearsarge, Patoka, Pawtucket, Prometheus, Pyro, AS-8 (Ex Savannah).

TODD DRYDOCKS, INC.

Harbor Island

Seattle, Wash.

DRYDOCK, PAINT, MISCELLANEOUS: SS. Edward Luckenbach, SS. Julia Luckenbach, SS. Northland, SS. Point Montara, SS. Point Bonita.

ENGINE & MACHINERY REPAIRS: SS. Dinteldyk.

UNITED STATES NAVY YARD

Mare Island, Calif.

NEW CONSTRUCTION: Build-

ing the heavy cruiser **San Francisco**, (CA-38) for United States Navy, 10,000 tons displacement; L.B.P. 578'; extreme beam 61', 10"; normal loaded draft, 21', 7"; keel laid September 9, 1931, launched March 9, 1933, to be delivered February, 1934. **Smith**, U.S. torpedo boat destroyer (DD378); 340 ft. long, 35 knots speed; standard displacement, 1500 tons; estimated completion date, Feb., 1936. **Preston**, U. S. torpedo boat destroyer (DD379); 340 ft. long; 35 knots speed; standard displacement, 1500 tons; estimated completion date, May, 1936.

Atlantic, Lakes, Rivers

AMERICAN BRIDGE COMPANY Pittsburgh, Pa.

NEW CONSTRUCTION: Five sand barges for the McCrady Rodgers Company, Pittsburgh, Pa. 135' x 7' x 7' 6" and five cargo barges 175' x 40' x 11' for the American Barge Line Company of Louisville, Ky., completed and delivered.

Repairs to 27 coal barges (175' x 26' x 11') for Carnegie Steel Co., 10 delivered.

THE AMERICAN SHIPBUILDING COMPANY

Cleveland, Ohio

Four bulk lake freighters converting to self-unloading vessels, completed and delivered.

BATH IRON WORKS Bath, Maine

NEW CONSTRUCTION: Hull No. 154, Dewey (DD 349), torpedo boat destroyer for U.S. Navy; keel laid Dec. 16, 1932; estimated launching, May, 1934; estimated delivery, August, 1934. Hull No. 159, Drayton (DD 366), torpedo boat destroyer, U.S. Navy; keel laying and launching, no dates set; estimated delivery, November, 1935; Hull No. 160, Lamson (DD 367), torpedo boat destroyer, for U.S. Navy; keel laying and launching, no dates set; estimated delivery, January, 1936. Speed loaded for all three of the above, 36½ knots. Standard displacement 1500 tons, turbine engines.

BETHLEHEM SHIPBUILDING CORPORATION

Fore River Plant,
Quincy, Mass.

NEW CONSTRUCTION: For the U. S. Navy: **Torpedo Boat Destroyer Farragut** (No. 348), 340 ft. long, 35 knots speed. Estimated delivery February, 1934. **Heavy Cruiser CA-**

39, Quincy, 10,000 tons. Estimated delivery January, 1936. **Heavy Cruiser CA44, Vincennes**, 10,000 tons. Estimated delivery January 1937. Keel not to be laid before January, 1934. **Four Toredpo Boat Destroyers:** DD360, Phelps, estimated delivery, December, 1935; DD361, Clark, estimated delivery February, 1936; DD362, Moffett, estimated delivery April 1936; DD363, Balch, estimated delivery, June, 1936.

CHARLESTON DRYDOCK AND MACHINERY CO.

Charleston, S.C.

NEW CONSTRUCTION: **Yacht Ranger**, conversion to cargo boat; estimated completion, late December, 1933. **Contract** for building a 60,000-gallon gas, all-welded tanker; estimated delivery, February, 1934; owners not announced.

COLLINGWOOD SHIPYARDS, LTD.

Collingwood, Ontario

DRYDOCK, PAINT, MISCELLANEOUS: SS. Manitou, Tug Strathbogie.

DEFOE BOAT AND MOTOR WORKS

Bay City, Mich.

NEW CONSTRUCTION: U. S. Coast Guard Cutter No. 151, displacement tonnage 1000; keel laid, November 30, 1933; estimated launching, Sept. 1934; estimated delivery, Nov. 1934. U. S. Coast Guard Cutter No. 152, displacement tonnage 1000; geared turbine drive; B. & W. boilers; 1500 h.p.; keel laid Dec. 15, 1933; estimated launching, Oct., 1934; estimated delivery, Nov., 1934.

THE DRAVO CONTRACTING CO.

Engineering Works Dept.,

Pittsburgh, Pa., and Wilmington,
Del.

NEW CONSTRUCTION: Contract No. 872, Hull No. 997, one diesel sternwheel towboat, Stock, of 91 gross tons; contract No. 983, Hull No. 1151, one steel floating drydock, Bureau of Yards and Docks, Navy Department, of 4220 gross tons; contract No. W1004, Hull Nos. 1165, 1166, 1167, and 1168, four hopper type mdse. barges, size 132' x 35' x 11' for the Union Barge Line Corp., Pittsburgh, Pa., 2072 gross tons. Contract No. 1019, Hull No. 1169, 240 H.P. single screw diesel towboat; size 90'x21'x6'9"; 153 gross tons. This makes a total of seven hulls under contract, with a total gross tonnage of 6536.

DUBUQUE BOAT & BOILER WORKS

Dubuque, Iowa

NEW CONSTRUCTION: Self propelled 16-inch suction, pipeline dredge for U. S. Engineer's Office, Vicksburg, Miss.

ELECTRIC BOAT CO.

Groton, Conn.

NEW CONSTRUCTION: Hull No. 17, Cuttlefish, fleet submarine, (SS171) for U. S. Navy, keel laid October 7, 1931; launched July, 1933; and estimated delivery, March, 1934; standard displacement, 1125 tons. Also two river boats of about 250 tons, 145 feet long, no names. Hull No. 19, fleet submarine, Shark, (SS174); L.B.P. 298'; beam, 25'; standard displacement, 1315 tons; keel laid, October 24, 1933; estimated launching, April, 1935. Hull No. 20, Tarpon (SS175): L.B.P., 298'; beam, 25'; standard displacement, 1315 tons; keel laid, December, 1933; estimated launching, February, 1935; possible delivery, November, 1935.

THE FEDERAL SHIPBUILDING AND DRYDOCK COMPANY

Kearny, N.J.

NEW CONSTRUCTION: Two destroyers, DD368 Flusser and DD369 Reid for the U. S. Navy, estimated completion dates—Flusser, Nov., 1935; Reid, Feb., 1936; Hull 125, a barge for the Hygrade No. 2 Corporation, 174'x39'; 12' loaded draft of 700 d.w. tons; keel laid, October 5, 1933; launched, November 29, 1933; delivered December, 1933. Hull No. 126, Seaboard No. 77, keel laid, Aug. 21, 1933; launched Oct. 10, 1933; delivered Oct. 20, 1933; dimensions same as Hull 125.

GREAT LAKES ENGINEERING WORKS

River Rouge, Mich.

NEW CONSTRUCTION: Light-house tender Dahlia, hull 282 for U.S. Bureau of Lighthouses, 72'x20'x7'6". 240 B.H.P. diesel; delivered November 10, 1933.

INGALLS IRON WORKS

Birmingham, Ala.

NEW CONSTRUCTION: Hull No. 72, river dredge; keel laid, Nov. 6, 1933; estimated launching, Jan. 2, 1934; L.B.P., 140'; beam, 49'. Hulls Nos. 73 and 74, river pontoons; keels laid Nov. 1933; estimated delivery, Dec. 20, 1933; L.B. P. 140'; beam, 8'. Hulls Nos. 75 and 76, 2 barges, A-76 and A-78; keels

January

laid, Nov., 1933; estimated launching, Dec., 1933; L.B.P., 105'; beam, 29.5'; loaded draft, 6.25'; d.w. tons, 450.

JONES & LAUGHLIN STEEL CORP.

Pittsburgh, Pa.

(Report through Dept. of Commerce, Washington, D.C.)

NEW CONSTRUCTION: 4 steel vessels, 1160 gross tonnage.

MANITOWOC SHIPBUILDING CO.

Manitowoc, Wis.

NEW CONSTRUCTION: Three patrol boats for the United States Coast Guard at the cost of \$242,800 per vessel.

THE MARIETTA MANUFACTURING COMPANY

Point Pleasant, W. Va.

NEW CONSTRUCTION: Two 32-inch channel dredges of the dustpan suction head type for U. S. Engineer's Office, Memphis, Tenn. 244' length, 52' molded beam, and 9' depth. These dredges have steel hulls, and keels were laid: Jadwin on July 5th, 1933, and Burgess on July 8th, 1933. They are self-propelled with triple expansion engines and steam turbine drive. Jadwin launched, Oct. 28, 1933; Burgess, estimated launching, Nov. 30, 1933; estimated delivery, Dec. 1933.

Three 165' Patrol Boats for U. S. Coast Guard, Washington, D. C. These boats have a 25'3" beam, they are 13'2" deep and will draw approximately 7'. They will be of the twin-screw type, propelled by two 650 horsepower Winton Diesel engines. The total displacement of each vessel is approximately 300 tons and the required speed is 16 knots. Two 122'x35'x10' steel covered cargo barges of 850 tons capacity for stock account.

JOHN H. MATHIS

Camden, N.J.

(Report through Dept. of Commerce, Washington, D.C.)

NEW CONSTRUCTION: 1 steel vessel, 480 gross tons.

McCLINTIC-MARSHALL CORP.

Pittsburgh, Pa.

(Report through Dept. of Commerce, Washington, D.C.)

NEW CONSTRUCTION: 5 steel vessels, 1205 gross tonnage.

MIDLAND BARGE COMPANY

(Subsidiary of Treadwell Construction Co.)

Midland and Erie, Pa.

NEW CONSTRUCTION: Hull

243, one 15-ton whirler derrick boat with 85 ft. boom for U.S. Engineers. Hull 246, ferryboat for Wheeling Steel Corp. Hull 247 one barge for Parsons and Rader, completed. Hulls 248 and 249, two steel Needle Flats for U.S. Engineer's Office, Cincinnati, Ohio. 48 pontoons, 48' x 18' x 2' 10" for U. S. Engineers, Memphis, Tenn. Two barges, 40' x 18'x3' for U. S. Engineer's Office, Chicago, Ill.

NASHVILLE BRIDGE CO.,

Nashville, Tenn.

NEW CONSTRUCTION: Two Barges, Nos. 81 and 82, 126 gross tonnage each, owner not made public, delivered.

NEWPORT NEWS SHIPBUILDING & DRYDOCK CO.

90 Broad Street, New York

NEW CONSTRUCTION: Contracts for H 359 aircraft carrier CV5, Yorktown, for U.S. Navy estimated delivery August, 1936 and H360 aircraft carrier, CV6, Enterprise, for U.S. Navy, estimated delivery, December, 1936. Also Ranger, hull 353, aircraft carrier No. 4 for U.S. Navy, keel laid September 26, 1931, launched February 25, 1933, estimated delivery May 1, 1934. There is also under construction Hull 357, freight vessel for the A. H. Bull Steamship Company, 40 West Street, New York, 410' length, 55' beam, 30'6" depth, geared turbine, delivery estimated April 30, 1934. Also Hull 358, same as above, delivery estimated during May, 1934.

THE NEW YORK SHIPBUILDING COMPANY

Camden, N.J.

NEW CONSTRUCTION: Contracts for four destroyers: Hull No. 408, Porter (DD356); Hull No. 409, Selfridge (DD357); Hull No. 410, McDougal (DD358); Hull No. 411, Winslow (DD359); of 1850 tons each. Also two light cruisers: Hull No. 412, Savannah (CL42), Hull No. 413, Nashville (CL43), of 10,000 tons each for the U.S. Navy Department; estimated delivery dates are as follows: DD356, Porter, Dec., 1935; DD357, Selfridge, Feb., 1936; DD358, McDougal, Apr., 1936; DD359, Winslow, June, 1936; CL42, Savannah, Aug., 1936; CL43, Nashville, Dec., 1936.

THE PUSEY & JONES CORP.

Wilmington, Del.

NEW CONSTRUCTION: Delmarva, hull 1059, twin screw automobile and passenger ferry for Vir-

ginia Ferry Corporation; 250 L. B. P.; 59' beam; 10' loaded draft; 18 knots speed; 350 Skinner Unaflo steam engine; 2800 I.H.P.; two watertube boilers; keel laid June 1, 1933; launched Nov. 2, 1933, delivery estimated December 15, 1933. Nos. 56, 57, and 58, cruising cutters, building for Treasury Dept., U.S. Coast Guard Service; L.B.P., 150'; beams, 36'; loaded draft 13'; speed loaded, 15 miles per hour; turbine engines, 1500 S.H.P.; two watertube boilers, 325 pounds pressure, construction schedule not yet made up.

SUN SHIPBUILDING & DRY DOCK CO.

Chester, Pa.

DRY DOCK, PAINT, MISCELLANEOUS: MS. Brilliant, SS. Dorothy, SS. Commercial Navigator, SS. Birkenhead, SS. Detroit, Ferryboat Bridgeport, SS. J. N. Pew, MS. Mercury Sun, MS. Southern Sun, SS. W. W. Mills, SS. David McKelvy, SS. Pacific Cedar, U.S. Dredge Russell, U.S. Dredge Marshall, Derrick Boat No. 37.

TODD SHIPYARDS CORP.

25 Broadway, New York City

NEW CONSTRUCTION: Has completed the installation of a five section floating dry dock. This dry dock is 492 feet long, 117 feet in breadth and has a lifting capacity of 10,000 tons. This dry dock commenced operations on Thursday, September 7, 1933.

UNITED DRYDOCKS, Inc.

Staten Island, N.Y.

NEW CONSTRUCTION: DD364, destroyer Mahan, estimated delivery, Oct. 1935, and DD 365, destroyer Cummings, estimated delivery, Dec., 1935, for U. S. Navy. Hull 817, Barge Blue Line 101, launched Oct. 18, 1933; delivered, Oct. 21, 1933. Hull No. 818 Barge Blue Line 102 for J. McWilliams Blue Line; keels laid August, 1933; estimated launching, December 19, 1933; estimated delivery, December 20, 1933. Hull No. 821, no name, Barge, for Stoderus Oil Co.; L.B.P. 100', beam 30', depth 8'; keel laid Nov. 10, 1933; estimated launching, December 19, 1933; estimated delivery, December 20, 1933.

UNITED STATES NAVY YARD

Boston, Mass.

NEW CONSTRUCTION: Destroyer DD 370, Case, L.B.P. 334 ft., beam 35 ft.; estimated delivery, Feb., 1936; destroyer DD371, Conyngham, L.B.P. 334 ft., beam 35 ft., estimated delivery, May, 1936; de-

stroyer DD354, Monaghan, L.B.P. laid, Oct. 21, 1931; launched, Oct. 19, 1933; commissioned Dec. 1, 1933; estimated delivery, Feb., 1934. SS. 172, Porpoise; keel laid, Oct. 27, 1933; estimated delivery, Feb. 1936. SS. 173, Pike, estimated delivery, May, 1936.

UNITED STATES NAVY YARD Charleston, S.C.

NEW CONSTRUCTION: U.S.S. Charleston, gunboat (PG 51) for U.S. Navy, building period assigned by Navy Department, Nov. 1, 1933, to Feb. 1, 1936. Work not yet started.

UNITED STATES NAVY YARD New York, N. Y.

NEW CONSTRUCTION: Hull No. 32, New Orleans, heavy cruiser; keel laid, March 14, 1931; launched, April 12, 1933; no delivery date set; L.B.P. 578'; beam 619'; standard displacement, 10,000 tons; geared turbine engines; express type boilers. Hull No. 350, Hull, destroyer; keel laid, March, 1933; no further dates set; L.B.P. 334'; beam, 342'; standard displacement, 1500 tons; geared turbine engines; express type boilers. Hull No. 353, Dale, destroyer, dimensions same as above, no dates set. Hull No. 41, Brooklyn, light cruiser, no dates set; L.B.P. 600'; beam 618'; standard displacement, 10,000; geared turbine engines; express type boilers. Hull No. 50, Eric, gunboat, no dates set; L.B.P., 308'; beam, 41'; standard displacement, 2000 tons; geared turbine engines; express type boilers. Building for U.S. Navy.

UNITED STATES NAVY YARD Philadelphia, Pa.

NEW CONSTRUCTION: Philadelphia (CL41), light cruiser, 10,000 tons, length overall 588'; breadth 61'9" extreme; depth 34' at side; estimated completion, Nov., 1936. Minneapolis (CA36), heavy cruiser, 10,000 tons, length overall 607'6"; breadth 59'6" molded; depth 35'8"; tentative delivery date Aug. 31, 1936; Aylwin (DD355), destroyer, 1,500 tons; Cassin (DD372), destroyer, 1,500 tons; Shaw (DD373) destroyer 1,500 tons for last three above; length overall 341'3", breadth 34'11 1/2" extreme; depth 23'2" at side; tentative delivery dates January, 1935, February, 1936, May, 1936, respectively.

UNITED STATES NAVY YARD Portsmouth, N. H.

NEW CONSTRUCTION: Three submarines: SS. 170, Cachalot, keel

UNITED STATES NAVY YARD Portsmouth, Va.

NEW CONSTRUCTION: Torpedo Boat Destroyer Tucker (DE374) for U.S. Navy, 344 ft. long; beam 35'; loaded draft, 10'10"; treaty standard displacement, 1500 tons; No. 4 boilers; 35 knots speed; estimated delivery, February, 1936; Torpedo Boat Destroyer Downes (DD375)

The Sperry Gyroscope Company of Brooklyn, New York, announce the receipt of contracts from the United States Navy, amounting to \$452,000 for Gyro-Compasses, to be installed on the cruisers, aircraft carriers, gun boats, destroyers, and submarines now under construction as part of the National Recovery Program.

Gyro-Compasses are used on all Navy ships today because they are more accurate than the magnetic compass. Quick motions of the ship and magnetic influences which cause the magnetic compass to oscillate or be in error, do not affect the gyro-compass. Inasmuch as the gyro-compass points to the true North Pole, readings are made directly, without necessitating any need of computation. In the gyro-compass, the earth's rotational motion provides the force which makes the axle of the gyro wheel take up a position in line with the earth's poles, thus indicating the true north Pole. Navy engineers state that another advantage of the gyro-compass is that readings of the master compass can be transmitted electrically to repeater compasses in as many as 40 locations throughout the ship. This characteristic of transmission of readings also makes possible the recording of the vessel's course as well as holding that course automatically by means of the gyro-pilot.

The rim of the rotor of the gyro-compass attains a velocity of approximately 300 miles an hour.

The Sperry Gyroscope Company announce also the receipt of orders totalling \$291,000 for 36-inch high intensity 350,000,000 beam candle power searchlights to be installed on the same naval vessels. These high power searchlights are not a new development but have been

for U.S. Navy, 344 ft. long; beam 35'; loaded draft, 10'10"; treaty standard displacement, 1500 tons; No. 4 boilers; 35 knots speed; estimated delivery, May, 1936. Work not yet started.

MODERNIZATION: Battleship BB42, Idaho; estimated completion, Sept., 1934.

DRYDOCK, PAINT, MISCELLANEOUS: U.S.S. Antares (AG10), U.S.S. Henderson (API), U.S.C.G. Pontchartrain, U.S.S. Mississippi (BB41), U.S.S. Nitro (AE2), U.S.S. Nokomis (PY6).

ENGINE AND MACHINERY REPAIRS: U.S.S. Sequoia (AG23).

standard equipment on the larger vessels of the United States Navy for several years. They are equipped with shutters for signalling and are also used in locating the position of airplanes in flight or of other ships at sea.

This 350,000,000 beam candle power light, constructed of aluminum, is equipped with a parabolic mirror used in connection with the Sperry high intensity arc. The carbon feed is entirely automatic.

Columbia Rope Calendar. Again, a colorful, delightful reproduction of a marine painting by that celebrated artist, Charles Robert Patterson, graces the new Columbian Calendar for 1934. This calendar is destined to be judged by many as one of the best the Columbian Rope Company has ever issued.

In the picture, the artist, Charles Robert Patterson, has endeavored to portray one of the happier phases of sailing-ship life in the olden days. Nearing the close of a fine day, the ship Abner Coburn is shown running before a strong, fair wind, while swimming ahead of the vessel a number of porpoises disport themselves, leaping and rolling in the playful manner characteristic of these small members of the whale family. They seem to have arrived from nowhere in particular, and after a while will leave for the same place, lucky if some one on board the ship does not plant a harpoon in one or more of their number.

Porpoise steak was a welcome change from the usual bill-of-fare on a deep-water sailing ship.

The Abner Coburn, a three skysail yard ship in her early days, was built by William Rogers at Bath, Maine and was launched in October, 1882.



Marine Insurance

Fire Control for Passenger Vessels

II. Economics and General Comment

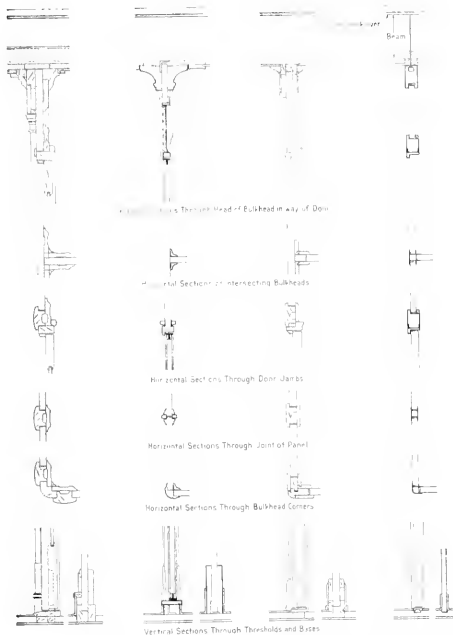
By George C. Sharp
Naval Architect

It has been estimated that the additional cost that would be incurred in a large passenger vessel by compliance with the tentative requirements of the National Fire Protection Association, which are appended to this paper, would be almost one per cent of the cost of the vessel. This is probably very close to the mark, provided no improvement is made in the architectural design looking to the development of more simple forms that would lend themselves to the elimination of wood and simplification of construction.

It is difficult, of course, to conceive of anyone carrying out some of the designs noted in the public rooms of a great many passenger vessels without an extensive and costly use of wood. It is still more difficult to offer any suggestion, if this type of decoration is to be insisted upon, except to have it carried out in fire-resisting materials, thereby increasing expense and weight.

It is doubtful if a proper appraisal of the passengers' taste in such matters has been made by those responsible.

It seems to have been overlooked that the passenger has to live more or less in these quarters in many cases for fairly long periods of time and that nothing is more confusing and more monotonous than the excessive detail of the overdecorated treatments so generally used. The better modern treatments could be dealt with most economically and with a minimum of wood, but the over-decorated modern treatments are even more confusing than the period types. There are some fine examples of the modern style but they are all simple and lacking in monotonous detail. One of the public rooms of the unfortunate *L'Atlantique* was a fine example of dignified simplicity. However, period treatments may be modified without loss of the gen-



Vertical rows left to right show: 1. Usual method of construction with untreated materials. 2. Kiesecker system using metal sills, posts and trim, with treated wood walls, doors and ceiling. 3. System using treated wood for all details; and 4. the Sharp system using metal sills and trim, hollow channel posts, and treated wood walls and doors.

eral effect to meet the economic as well as the fire-resisting requirements.

Gems of highly decorated period architecture are beautiful, but it is doubtful if anyone really believes that a museum containing a fairly comprehensive collection of these, even assuming they are gems, would be a desirable place in which to relax on a business or holiday voyage—though this in effect is what is provided in too many cases.

May it not be, in the competitive rush to excel in decorative magnificence, that sufficiently penetrating thought has not been given to this very important subject?

It is suggested that, if the luxury be confined to furnishings of good taste and if the structure be such as to provide a background that would have harmony and unity, the result would be to provide an environment comparable to the restfulness of one's own home. This result not only caters to the mental and physical comfort of passengers but would have economic value to the owner.

Why should highly decorated period architecture be the attainment desired? True, many of the public rooms of hotels are too often treated in this manner, and it is probably an easily understood trend of thought to consider hotel and ship accommodations for guests and passengers serving, more or less, a somewhat similar purpose.

This analogy may be open to question. On land the guest is not necessarily confined to the hotel for a time equivalent to the duration of a sea voyage. The hotel guest has the opportunity of release from an environment that may not be entirely satisfying. Whereas at sea there is no opportunity of escape, and if the environment from any cause is not pleasing, the unfortunate passenger is denied the opportunity of the thorough enjoyment of his voyage. If this is the case, these passengers are not likely to be the "good will" emissaries that help in obtaining future business. It is understood, naturally, that these views do not permit of universal application, since there may be some short services where the rather usual types of decoration might make the right appeal.

The question of decoration is raised here on account of its particular bearing on the economics of fire control.

Another point in the economics of public rooms is the amount of hidden furring, bracing, etc., that has crept into or, perhaps better to say, remained in the construction thereby increasing the cost and the fire hazard.

Furring behind linings as known at present, whether of treated or untreated wood, should be eliminated entirely. In any consideration of this subject it is not so difficult to understand how some of the practices developed, as it is to account for their determined persistence.

All are familiar with the labyrinth of timber behind the side walls of some dining rooms where they have for some reason been framed away from the side of the vessel, also with the construction where frames and bulkhead stiffeners are furred and partially or entirely lined with boards to form backing for some type of composition board of lesser thickness than ordinary bulkhead panels. A simple sill and top runner would have carried panels of appropriate thickness suitably jointed to take any desired face trim, thus obtaining the same result at much less expense and weight.

In dealing with such conditions in fire-resisting construction metal runners and joints are preferable though treated wood is considered satisfactory. Either method is much less expensive than adhering to the more usual practices.

Elsewhere in the discussion of the fire hazard, a great many objections have been raised to suggestions for draft doors. The nature of the objections (viz., obstructing egress) again suggests consideration of this subject in the atmosphere created by the recent disasters and leading apparently to the anomaly of an objection to the provision of one of the most effective means of fire control in order to provide for the consequences of its omission.

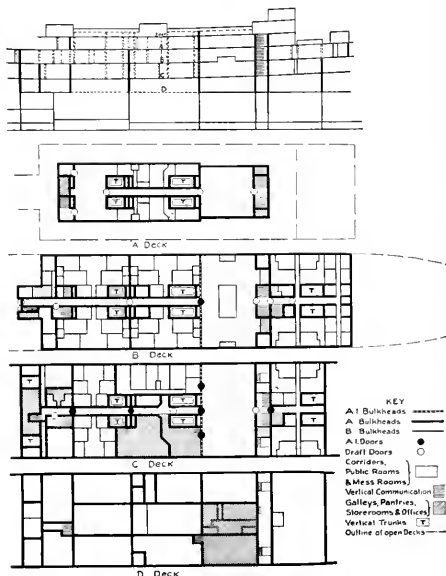
These draft doors are swinging steel French doors of a standard make with clear wired glass practically their full depth. They cost relatively little and may be

obtained with the underwriters' label. They have been used by the writer for many years at stairway enclosures and elsewhere, and in actual service they suggest no danger of obstructing egress, creating confusion or any of the other objections. Rather, the reverse is the case. French doors for draft can, of course, also be made of treated wood to suit the surroundings.

In considering the increased cost that might be involved in the cabin enclosure "B" bulkheading by the use of fire-resisting materials, it might be noted that the range in cost of fire-resisting panel material will probably be from about 35 cents to 55 cents per square foot, as compared with a probable range of cost of about 25 cents to 55 cents for untreated plywood panels.

It will, therefore, be apparent that by investigating thoroughly the suitability, advantages and disadvantages of the various materials available it would be quite possible to obtain suitable fire-resistant panels at little, if any, greater cost than many of the types so generally used.

In the matter of simplification of the methods of construction, it may be assumed with reasonable confidence that by making a fresh start in the consideration of this problem economies can be effected that will wipe out any adverse balance which might, in the light of existing practices, seem to be inescapable. Of course, such economies as might be effected would in some measure also apply to construction using untreated panels, but it seems fair to credit the economies effected by the advancement in the art to the production of a means for controlling an outbreak of fire.



Bulkhead diagram of American Export Line vessels, S. S. Excalibur, Exachordia, Exeter and Excamion.

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With only minor exceptions all vessels dealt with by the writer in the last decade have been fitted with fire-resisting "B" bulkheads in the accommodation constructed of metal and hard asbestos veneers or structural steel to suit conditions. Naturally, this could not have been accomplished without the cooperation of the owners and the assistance of the shipbuilders.

An example of this is shown in the bulkhead diagram of the four American Export Line vessels built in 1929 by the New York Shipbuilding Company. From this diagram it will be seen that the construction, as indicated, would comply essentially with all of the suggestions set forth here, or the requirements of the tentative regulations of the National Fire Protection Association.

All "B" bulkheads are built of fire-resisting materials, either of metal or hard asbestos veneer, in passengers' and officers' quarters; in the crew's quarters "B" bulkheads are of steel.

Two of the draft doors in the corridors were not fitted in this vessel but these corridors were constructed entirely of structural steel and fitted tight up to steel decks.

Considering their general characteristics, these can-

not be considered to have been expensive vessels.

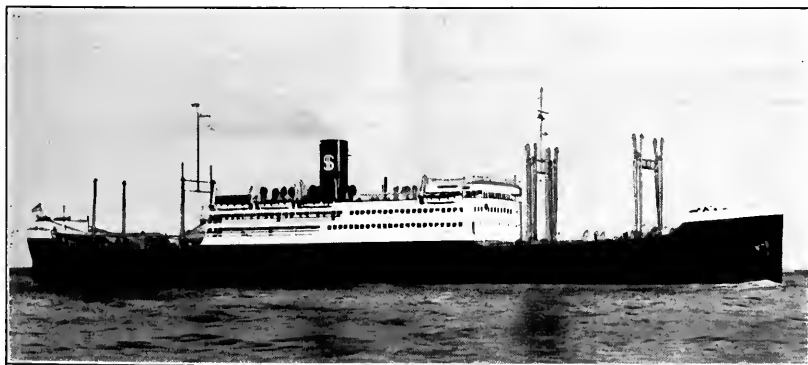
The Department of Health requirements with regard to rat proofing have in many cases been a source of great expense, and great economies will be effected by the use of some of the fire-resisting materials and methods of construction previously suggested. In fact, the necessity for any additional rat proofing in the accommodation is practically eliminated.

It is believed that shipbuilders, from some of their experiences, will consider this a sizeable item, running into figures that would probably cover a very high percentage of any cost differential occasioned by the use of fire-resisting materials.

There are several other matters which might be added to the credits to be balanced off against the expense of fire control. However, these have been omitted as being outside the scope of the paper.

There are difficulties in the development of satisfactory fire-retardant construction, but study and experiment with each succeeding vessel dealt with have brought conviction not only that they should but that they can be overcome without an increase of cost that cannot be balanced by corresponding economies.

(To Be Continued)



Dollar 'Round the World' liner President Adams.

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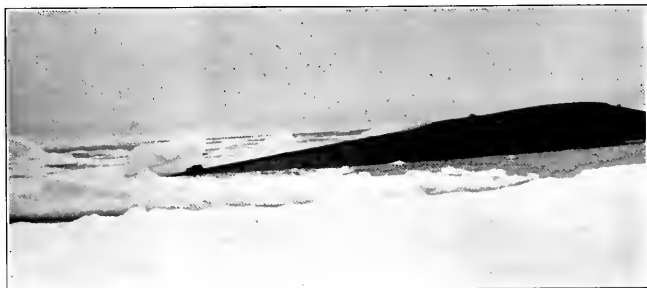
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The submarine Nautilus of the
Sir Hubert Wilkins Arctic ex-
pedition diving under the ice.
For story see page 12.



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Marine Insurance Notes

Charles R. Page, vice-president of Fireman's Fund Insurance Company, returned to San Francisco about the first of December, after a month's business trip, covering the Atlantic coast agencies of his firm.

Home Fire and Marine Insurance Company declared a dividend of 50 cents a share on the capital stock payable December 15 to all shareholders of record at the close of business December 5.

Remarkable Safety Record. Inter-Island Airways, Ltd., of Honolulu recently completed their fourth year of operation. During that time they have maintained, with four Sikorsky amphibian planes, a regular daily (except Sunday) schedule from Honolulu to the Islands of Molokai, Lanai, Maui, and Hawaii, and three times a week service to Kauai. These planes have flown 1,027,911 miles, in 10,828 flying hours, carrying 37,801 passengers without a single mishap.

No fires on Navy Ships. At the recent annual meeting of the Society of Naval Architects and Marine Engineers, Rear Admiral George H. Rock, newly elected president of that society, in discussing the paper "Fire Control on Passenger Liners" calls attention to the fire-proof construction of living quarters on Naval vessels, where even the furniture is now made of metal

and the only wood on the ship is the sheathing on the open weather deck. The navy designers and constructors have much of value for those who control the interior decoration of passenger liners.

Behring Sea Warranty. As of January 1, the Behring Sea Warranty clause in Institute of London Underwriters policies is changed to read:

"Warranted no Behring Sea and not to sail for or from any port or place in Alaska or Siberia (except that vessel may enter or sail from Vladivostok between May 1st and

October 31st b.d.i.)"

The former clause was as follows:

"Warranted no Behring Sea, no East Asian waters north of 46° N. lat. and not to sail for or from any port or place in Siberia (except that vessels may enter or sail from Vladivostok between May 1st and October 31st b.d.i.)"

At the time the former clause was written the entire island of Saghaline was part of Siberia and was therefore excluded in the warranty. For some time past part of that island has belonged to the Japanese Empire, hence confusion which has been cleared by the 46 degree north latitude stipulation. Alaska is omitted in the new clause because the North America Warranty clause sets 50 degrees north latitude as the northern limit on Pacific Coast and thus without the aid of the Behring Sea Warranty excludes the whole of Alaska. The amendment is, therefore, simply one of clarification.

Freights, Charters, Sales

December 18, 1933

The charter market on the Pacific Coast has shown steady improvement since our last report and all trades have felt the benefit. Rates have been somewhat firmer and tonnage is scarce for even January/February loading. In the European trades cargo has been offered freely and space has been at a premium, but this demand has moderated with the approach of the Holiday season. December will probably close with a dull market for grain and somewhat less demand for general cargo in forward position.

A feature of the market has been the sudden arising of a demand for bulk salt in cargo lots for Vladivostok. Several charters have been effected for prompt loading, and there is likely to be a continuance of the demand, which has been confined to ships of United States Registry. Rates have not been divulged, but are believed to have ranged between \$3.50 and \$3.25 free in and out.

As noted below, there have been a number of fixtures for China "Bounty Wheat".

● Charters

GRAIN: Ropner Steamer, British Columbia to U. K. Continent, 21/-, December/January; A Steamer, British Columbia to Shanghai, \$2.25

Canadian; Several Japanese steamers, Puget Sound to Japan, \$2.45; Swedish motorship "Aurora", Columbia River to Shanghai, 11/-; American steamers "Mary D." and "North King", Columbia River to Shanghai, p.t.; American steamer "Oregon", Columbia River to Shanghai, \$3.75; American steamer "Charles R. McCormack", Columbia River, North of Hatteras, p.t.; American steamer "Margaret Dollar", Columbia River to Shanghai, \$3.75; American steamer "Melville Dollar", Columbia River to Shanghai, \$3.75; Norwegian motorship "Ferndale", Columbia River to Shanghai, 11/-; British steamer "Northumberland", British motorship "Gedington Court" and Norwegian motorship "Heina", Columbia River to China, p.t.; Several unnamed ships same.

MISCELLANEOUS: British steamer "Newton Beach", 19/6; Finnish steamer "Wasaborg", British Columbia to U.K./Cont., 19 6; German steamer "Birkenfels", British Columbia to two ports U.K., 20/6; Norwegian motorship "Tampa", British Columbia to Hull 19/-; A steamer (British) British Columbia to U.K./Cont., January, 20/- all f. i.o.; British steamer "Masunda", British steamer "Quarrington Court", British steamer "_____"

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wheat and general British Columbia to U.K./Cont. p.t.; American steamer "Missoula", American steamer "Plow City", American steamer "Marsodak" and two other American steamers, salt, San Francisco to Vladivostok, p.t.; Danish steamer "Ninna" (refrigerated) British Columbia and Columbia River U.K./Cont., lump sum.

TIME CHARTER: Danish motorship "Nordpol", delivery North of Hatteras, redelivery Australia p.t.; Norwegian motorship "Tampa", delivery Colon, redelivery U.K./Cont., 4/6; Dutch motorship "Zaanland", delivery North Pacific, redelivery U.K./Cont., p.t.; American steamers "Mary D" and "North King", delivery and redelivery North Pacific one China round, p.t.

TANKERS: American "Spencer Kellogg", Takao, 28c (dirty); British "Athelecrow", California to two ports Japan 28c (dirty); Norwegian "Langanger", Los Angeles to Philippines, 9/9, (clean); American "Chilsco", California North of Hatteras, 45c.

PAGE BROTHERS

Port Notes

Hawaiian Dredging Company, Honolulu, submitted low bid to the Bureau of Yards and Docks, Washington, D.C., for the construction of a reinforced concrete pier and gauge, supported on concrete cylinders, on wood and concrete piles. The figure of \$2,966,700 includes dredging, concrete, steel sheet pile bulkheads, timber fender system, track work, piping systems, electrical work and fittings at the navy yard, (Spec. 7418).

George Pollock Co. Sacramento, Calif., submitted low bid to the Public Works Officer, Mare Island Navy Yard, for the extension of Dike No. 12 (Spec. 7102) at a figure of \$195,421.

Carl Swenson, 355 Stockton Ave., San Jose, was awarded contract by the Bureau of Yards and Docks, Washington, D. C. for the construction of eight smokeless powder magazines, two cases ammunition magazines and relocation of quarters at the Ammunition Depot. The amount involved was \$220,462.

Healy-Tibbets Construction Company, San Francisco, have been awarded contract for extensions to pier No. 3, Fort Mason, San Francisco, by the War Department. The

figure stated is \$283,300, and the work, which will employ fifty men, will start shortly after the first of the year. The improvement is planned to increase docking facilities for army transports.

The Department of Commerce, through the Shipping Board Bureau, received bids on December 22, 1933, for operation of Piers No. 3 and No. 4 of the Army Supply Base, situated at the foot of 59th Street, Brooklyn, N. Y., for a term commencing March 1, 1934, and to end at 12 o'clock midnight on December 31, 1936. The following bids were received:

Atlantic Tidewater Terminals, 50 per cent of the gross revenue from use and operation of these two piers but in no event less than \$151,000 per annum. Atlantic Tidewater Terminals also offered to renew its former lease on the property which was dated November 8, 1928 and expired December 1, 1933, upon the same terms and conditions except that the minimum rental be reduced from \$160,000 provided in that lease to \$144,000 per annum. Atlantic Tidewater Terminals are now operating the property temporarily until the new contract becomes effective.

Piers, Inc., submitted a bid of 56 per cent of the gross revenue derived from the use and operation of Piers No. 3 and No. 4 but in no event less than \$150,000 per annum, and under Proposition No. 2, of Notice to Bidders, offered 51 per cent of gross revenue derived only from Pier 3 but in no event less than \$20,000 per annum.

North Atlantic Terminal Service, Inc., submitted a bid covering Proposition No. 2, in Notice to Bidders, of 70 per cent of the gross revenue derived only from Pier No. 3 and in no event less than \$10,000 per annum.

The bids have been referred to the Merchant Fleet Corporation for report.

Radiomarine Contract. A long term service contract has been entered into between Swayne and Hoyt, Limited, and the Radiomarine Corporation of America, effective January 1, 1934, which covers the entire fleet of the Gulf Pacific Line. The vessels affected are:

Point Ancha, Point Arena, Point Bonita, Point Brava, Point Caleta, Point Chico, Point Clear, Point Fermin, Point Gorda, Point Lobos, Point Montara, Point Palmas, Point Reyes, Point Salinas, Point Sur.

Bureau of Yards and Docks Report, 1933

The annual report of the Chief of the Bureau of Yards and Docks to the Secretary of the Navy for the fiscal year 1933, contains the following information:

Contracts totaling \$3,757,000 for projects at various stations from New England to Hawaii have been awarded by the Bureau of Yards and Docks, Navy Department.

The largest and most important contract, \$2,789,600, for a new ship repair basin at the navy yard at Pearl Harbor was awarded the Hawaiian Dredging Company of Honolulu. Other contracts awarded included an extension to Dike 12 at the navy yard, Mare Island, to George Pollock Company of Sacramento, Calif., \$236,721; the reconstruction of shipways No. 3 at the navy yard, Philadelphia, to William Eisenberg & Son of Camden, N. J., \$200,347; marine barracks at the naval ammunition depot, Lake Denmark, N. J., to the H. T. Smith Construction Company of New York, \$109,000; an extension to the foundry at the navy yard, Pearl Harbor, let to Ralph E. Woolley of Honolulu, \$65,000; extension of the seaplane beach at the fleet air base, Pearl Harbor, let to R. S. Finlayson of Honolulu, \$42,200.

Emergency public works projects exceeding \$14,400,000 have now been placed under contract, or started by station forces, by the bureau. Bids on additional projects amounting to approximately \$8,200,000 more, most of which will be placed under contract within the next 30 days, have been invited.

The exceptional loads which have to be handled in connection with battleship repairs necessitated an unusually heavy type of construction in the ship repair basin to be constructed at Pearl Harbor. Over 110,000 barrels of cement and 6000 tons of reinforcing steel will be used in the concrete. Nearly 75 miles of wood piles and over 52 miles of reinforced concrete piles will go into the substructure, while 18 miles of electric conduit will be embedded in the docks.

A separate contract for the construction of four cranes for the repair basin was awarded to the Star Iron & Steel Company of Tacoma, Wash., for \$257,480.

Pacific Marine Personals

"NAMES ARE NEWS"



BY BERNARD De ROCHIE

● GRACE LINE PROMOTIONS

Edward T. Ford, vice-president, director and director general of all Grace Line interests on the Pacific slope, recently announced the following promotions and transfers among the personnel of the company:

Fred L. Doelker, who has been with Grace Line since 1914, will become Pacific Coast manager, to be assisted by Fred M. Rohrer, former auditor.

Mr. Doelker will continue in full charge of the operation of the Grace Line's Pacific Coast-South American service, and of the affairs of the Johnson Line, for whom W. R. Grace & Co. are Pacific Coast agents. Doelker is considered one of the most capable operators of passenger and freight ships in this region, his experience having included practically every department of the ocean transportation business.

Mr. Rohrer, who until four months ago was located in San Francisco, is now in New York. He will return to San Francisco to assume his new duties within a month.

C. C. Mallory, vice-president and general manager, whom Doelker succeeds, has been assigned to the New York offices with the position of vice-president, and will work there with Daulton Mann, executive vice-president, who was formerly general manager in San Francisco. Mr. Mallory has been with Grace Line since 1918, during the old Pacific Mail Steamship days. When Pacific Mail ceased to operate in 1924, with the organization of the Panama Mail Steamship Co., Mallory became assistant manager and treasurer. Two years ago, when the Panama Mail became the Grace Line, he succeeded Daulton Mann as vice-president and general manager at the San Francisco headquarters.

Zac T. George, former assistant freight traffic manager, will become traffic manager in charge of all interoceanic traffic operations on the Pacific Coast.

All promotions will become effective on January 1.



FRED L. DOELKER

Newly appointed Pacific Coast manager of the Grace Line, with operating direction of Grace North-Pacific and West Coast of South America service. Mr. Doelker will also have managing details of Johnson Line operations on this Coast.



C. C. MALLORY

Thousands of friends will rejoice in his promotion and wish him Godspeed and full measure of success in his new position as Grace Line vice-president in New York.

● GREETINGS FROM MANILA

Among the holiday greetings received at P.M.R. long-distance Christmas-bell-ringer came from Herman D. Nichols of Tubbs Cordage Company, on business in far-away Manila.

Herman's greeting came in the form of an artistic sketch penned on a mother-of-pearl medallion. He sends cordial well-wishes to P.M.R.'s staff, writing: "I am enjoying Manila but could go for a nice chunk of good old S.F. fog in a big way!"

● DOLLAR OFFICIAL

Walter L. Johnstone, assistant passenger traffic manager of Dollar Steamship Company, stationed for many years in Tokyo and Yokohama, has been signally honored by the Tokyo Rotary Club.

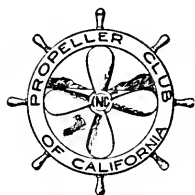
Mr. Johnstone is the recipient of a life-long memento, a glorious varicolored, mural tapestry, depicting a native Japanese fishing scene—the art handiwork in which the sons of Nippon excel. Accompanying the beautiful gift was a resolution which concludes as follows:

"Be it resolved, at this thirteenth anniversary of the Tokyo Rotary Club, to express renewed gratitude to Walter L. Johnstone for his valuable service rendered at the time of the founding of the first Rotary club in Japan, and to have a copy of this resolution sent to Mr. Johnstone, together with a memento as a slight token of our profound appreciation of his kind, self-sacrificing and highly efficient service rendered."

After an 18-year service with the Pacific Steamship Company, in Seattle, Portland, California and Alaska districts Walter J. Manahan has recently been appointed assistant manager of the Northland Transportation.

Official News of the

PROPELLER CLUB of California



HEADQUARTERS
Balfour Building, San Francisco

President
CAPT. A. T. HUNTER

Secretary-Treasurer
STANLEY E. ALLEN

BOARD OF GOVERNORS
HARRY HAVISIDE, *Chairman*

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| Robert E. Christy | Ralph W. Myers |
| James A. Cronin | Charles H. Robertson |
| Francis M. Edwards | Vernon Showell |
| Wm. C. Empey | |

● Luncheon Meetings

November 28, "Going to Sea on Rails" proved an absorbing motion picture film devoted to the operations of Seatrain Lines, Inc., operators of seagoing railroads between New York and New Orleans by way of Havana.

The picture depicted these two notable ships, Seatrain New York and Seatrain Havana, in service of transporting freight cars, lifted aboard the vessels intact and swung ashore at port of destination ready for the rails.

Vernon Showell wielded the gavel at this meeting which brought out a fair attendance.

— P C —

● December 19.

Walter J. Walsh gave us a very interesting talk on Admiralty Law, reviewing the history of maritime jurisprudence since early days. Many fascinating customs which originated practices still in vogue were cited — the port-to-port passing of ships, the origin of the word "stateroom", the beginning of general averages.

Capt. Stanley E. Allen presided over the meeting and made complimentary comments on the recent Christmas Jinks to which Herbert Anderson responded in a neat talk.

This meeting is the last scheduled until the holidays are over and announcement of the next event will come to the members during the first part of January.

— P C —

The Propeller Club grieves in the passing of one of its best-loved members, Captain George S. Lapraik.

Captain Lapraik enjoyed many deep friendships in our organization representing as he did the grand old days of deep-sea Shipmasters. His reminiscences of early

A new berth for the good ship "Propeller Club"!

The next meeting scheduled for the second Tuesday of January — January 9, to be exact — will be held at the Fairmont Hotel.

Take the little cable car up the hill, shipmates, and come aboard to inspect the new mooring!

Pacific Mail days, his experiences in the Nippon and China trades and his distinguished career as captain of windjammers, transports and ocean liners were colorful reminders of the gallant past of a nobleman of the sea. Farewell, friend!

— P C —

On January 9 we will have the election of officers for 1934. The report of the Nominating Committee lists the following:

For president—H. T. Haviside.

For board of governors, for regular three-year terms,

John T. Greany
C. M. LeCount
Fletcher Monson
W. Edgar Martin

— P C —

New members. Captain Stanley E. Allen, our secretary-treasurer, advises that the following new members have been elected:

T. M. Stevens of the Radiomarine Corp., San Francisco.

B. P. Sibley of the Socony Vacuum San Francisco division.

R. C. Dwyer, chief engineer California Nautical School.

— P C —

In Memoriam:
Captain George Lapraik
James Bermingham

The Fourth Annual Christmas Banquet

Nearly three hundred members journeyed to Can-Can Island on the evening of December 12.

The voyage was a sensational success with all committees contributing fine cooperation.

Professional stage talent aided and abetted the club Thespians, led by Director Bert Anderson, and singing and dancing numbers to the pleasing music of Phil Sapiro's orchestra were featured as the olio to the hit of the evening, "Adventures on Can-Can Island."

The 40-minute skit was presented to a lively tempo and built up to a grand finish with increasing pace.

First honors went to leading lady, Queen Lallapaloosa, as portrayed by Capt. Cyril Meek. Cy's make-up was a knock-out, and indicated the prosperous business of queening as no one could say our queen was "flat-busted".

Al Porter was great as the royal consort, and got all the meat out of his lines—"white meat", to be accurate.

The Colonel of the Royal Army proved a natural for Dick Glissman and to him went the credit for the maneuvers of the royal army, drilled to the perfection of San Francisco's finest on dress-parade. Dick shared comedy honors with playwright and director, Bert Anderson, who gave an excellent Chinaboy interpretation of his character. Bert's two original songs for the piece were handled by ensembles consisting of a full line of dancing girls, principals and eight Propellers rigged out as cannibals.

Louis Siverson tells us that the best singing of the evening took place in the dressing-rooms on the orlop-deck where the medley of numbers ranged from "The Last



Across the Footlights!

*Propellers Convene for Annual
Banquet and Jinks*

Good Fellows!

Good Entertainment!!

Good Times!!!

Round-Up" to "Tell Me, Pretty Maiden".

Leo Baldwin, the club's excellent singer, rang the bell with two well-received numbers during the olio of the show, and was good enough to dash up to the dressing-room for a black-up part in the chorus.

Fletcher Monson handled ticket reservations with fine efficiency, while the banquet committee, headed by Kenneth Ingraham with Phil Coxon and Edward Harms provided a menu which is still causing lips to smack. Bull's-eye for the Crab Legs Surprise!

— P C —

The Fairmont Terrace Room proved an ideal place for the combination banquet and stage show.

Dark-skinned members of the chorus included Mel Reed, Carl Lane, Louis Siverson, Edgar Martin, Leo Baldwin, Joe Coney, and Al Bogue. Paul Faulkner and Phil Harding did a swell job in keeping Her Majesty properly be-zephyred, although they didn't have their hearts in their work during the fan-dance number.

Frank DePue ran the show backstage, pulled all curtains, watched the lights, and kept a big-brotherly eye on the chorines.

Bern DeRocheie showed real histrionic promise in delivering his curtain-line, "All right, let's go!" Just the proper verve, nuance, and shading. He should go far dramatically.

President Hunter summed it all up in his opening address: "A great show!"

— P C —

Seen at the recent meetings . . .

Nothing like a Christmas Jinks to bring aboard many a Propeller



Skipper James S. Hines of the good ship, "Pacific Marine Review", photographed on the after deck of the Grace Line's Santo Rosa.

The slogan "Travel by Water" receives full endorsement from publisher Hines, who reports a most enjoyable 18-day cruise from San Francisco to New York.

Mr. Hines was joined in New York, during the first two weeks of December, by A. J. Dickie, P.M.R.'s editor. Editor Dickie journeyed as delegate of the A.S.M.E.

whom he don't see as often as the club would like!

Frinstance—the genial smile of past-president Jim Cronin was in

evidence throughout the formalities.

Also welcomed aboard were out-of-town guests including friends from Los Angeles and Portland. The fame of Propeller Club celebrations is wide-spread!

The final luncheon meeting of December attracted aboard a "cozy" attendance at which was manifest that true good fellowship that has endeared the Club to its members.

— P C —

Matson Line announces a South Seas Exploration Cruise, the S. S. City of Los Angeles sailing from Los Angeles on January 12 for a 40-day excursion to the Marquesas, the Society Islands, Rarotonga, Nukualofa, New Caledonia, Fiji, Western and Eastern Samoa, Honolulu, Hilo, and return to Los Angeles. We like the "copy" which beckons one aboard this "ship superbly appointed for such an important event — Bride of the Tropics, a foaming wake her veil, this trim, swift liner skims her own South Seas—a ship inspiringly gifted in the art of living—a sea-going chateau of budding adventure and full-blown delight!"

— P C —

● James Bermingham Passes

The news of the death of our fellow-member, James Bermingham will sadden many hearts in Coast maritime circles. For years he was associated with the Bethlehem Shipbuilding Corporation, Ltd., both in San Francisco and in San Pedro. A co-worker with many of our members, he held the high regard of the Propeller Club and it is with deep regret that we chronicle his passing.

H. C. Cantelow, a distinctive figure in Pacific ship operating circles for the past 25 years, has assumed the duties of secretary-manager of the Pacific Coastwise Conference.

Mr. Cantelow will continue his managership of the Los Angeles Steamship Association dividing his time between the two positions, with offices in San Francisco and Los Angeles.

His career in Pacific maritime events has been noteworthy and he is recognized as one of the best-posted authorities in coastwise, intercoastal and off-shore trades. His background includes official and executive positions with the old Pacific Coast Steamship Company, forerunner of the present-day Admiral Line, with the Alaska Steamship Company at Seattle and for many years as Pacific Coast manager of Luckenbach Steamship Company.

Mr. Cantelow succeeds John H. Rosseter in the Conference management, who retired on account of ill health. Mr. Rosseter is credited for re-organizing the Conference two years ago and bringing it to a high plane of service and efficiency.

F. A. Bailey, vice-president of the Matson Navigation Company, will represent Pacific American registered lines on the general committee which will draft the shipping code applying to foreign routes.

It is planned that representatives of foreign-flag lines will convene with the general committee comprised by delegates from the Coast, Gulf, North Atlantic and South Atlantic regions.

Thor Peterson, manager of the laundry department for Matson-Oceanic is making one of those "shuttle-trips", embarking on the Monterey for Pago-Pago, and returning on the Mariposa. He will inspect the laundry services on the two liners under actual sea-going conditions.

We hear that E. S. W. Smith, purser of the Monterey, has been selected for pursuing the big South Seas Exploration Cruise of the City of Los Angeles, mentioned elsewhere in this department.

Purser Smith is now on shore-side duty in San Francisco awaiting the make-ready details of the big voyage and his office on the Monterey is receiving the attention of O. O. Britton.



—Photo, Boys, S F

H. C. Cantelow.

From Los Angeles comes the news of the appointment of **Herbert P. Wynn** as district passenger agent for General Steamship Corporation.

Mr. Wynn is well experienced in travel bureau work and in Pacific and Oriental passenger lore. He has developed many friends in passenger-handling circles over his maritime career which dates back to his long association with the Dollar Line, both in Shanghai and San Francisco.

According to New York advices, **Joseph Scott**, formerly general manager of the Transmarine Lines in the intercoastal service has been appointed technical advisor to W. R. Davis, N.R.A. deputy administrator.

Mr. J. B. Levison has sent the following announcement out as a New Year's Greeting to the employees of the Fireman's Fund Group of companies throughout the United States:

"In view of the excellent result of our operations during the year nineteen thirty-three and in recognition of the splendid loyalty of the members of the Fireman's Fund family, the Board of Directors today authorized the following allowance to offset in part recent salary reductions: one month's salary to all employees who have been with the company more than one year, and a proportionate amount to those who have been with the company less than one year."

The John Scott Medal for scientific achievements was recently awarded by the City of Philadelphia to Dr. Frank Conrad, Assistant Chief Engineer of the Westinghouse Electric and Manufacturing Co.

Dr. Conrad has been honored previously for his achievements in radio.



Dr. Conrad.



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OVERLOOKING

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dio. In 1928 the University of Pittsburgh honored him with the degree of doctor of science and in 1920 he was recipient of the Edison Gold Medal for outstanding accomplishments in electrical engineering.

Glad to learn that our old pal and dock-mate, Harry B. Blair, is now berthed with Sudden & Christenson in Seattle.

This scribe worked across the desk from Harry back in the days when Pier B. was Seattle's busiest terminal.

Good luck, Harry — and thanks for the sub!

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H. H. WESTINGHOUSE DIES AT EIGHTY

Henry Herman Westinghouse, chairman of the Board of Directors of the Westinghouse Air Brake Company and an outstanding mechanical engineer, died at his home in Goshen, N. Y. He had recently celebrated his eightieth birthday.

One of seven brothers in a family of ten children, Mr. Westinghouse was born November 16, 1853 in Central Bridge, a village in Schoharie County, New York.

His engineering career began in the shop of his father, who was a manufacturer of patented agricultural machinery.

As a boy, young Henry attended the Union High School in Schenectady, N. Y. He was graduated in 1870, studied mechanical engineering at Cornell University in 1871, and the following year went to Pittsburgh to become associated with the Westinghouse Air Brake Company. Based largely upon the inventions of Mr. Westinghouse's brother, George, the company had been organized in 1869.

Mr. Westinghouse learned the business from the ground up, working in the foundry, machine shop



H. H. Westinghouse.

and drafting room. He became general manager in 1887, and vice-president in 1899. Upon the death of his brother, George, in 1914, he became president, and was elected chairman of the board of directors a year later.

Like his brother, Mr. Westinghouse was apt in discovering the mechanical needs of various periods, and in the late 1870's patented and developed the Westinghouse Single-Action Steam Engine. The invention is regarded as having been a vitally important factor in the growth of the electric power industry.

In 1881, Mr. Westinghouse organized the Westinghouse Machine Company to manufacture the new engine. With William L. Church, Walter C. Kerr and I. H. Davis, he formed the engineering firm of Westinghouse, Church, Kerr & Company and was its president for years.

Mr. Westinghouse was director and chairman of board, Westinghouse Air Brake Company; Canadian Westinghouse Company, Ltd.; director, Union Switch & Signal Company, Westinghouse Electric & Manufacturing Company; director and president, Compagnie des Freins Westinghouse, Paris; director, Westinghouse Brake & Saxby Signal Company, Ltd., London; director, Westinghouse Brake Company of Australasia, Ltd., Sydney; director, Westinghouse Brake Subsidiaries, Ltd., London.

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Pacific Marine Review

FEBRUARY 1934



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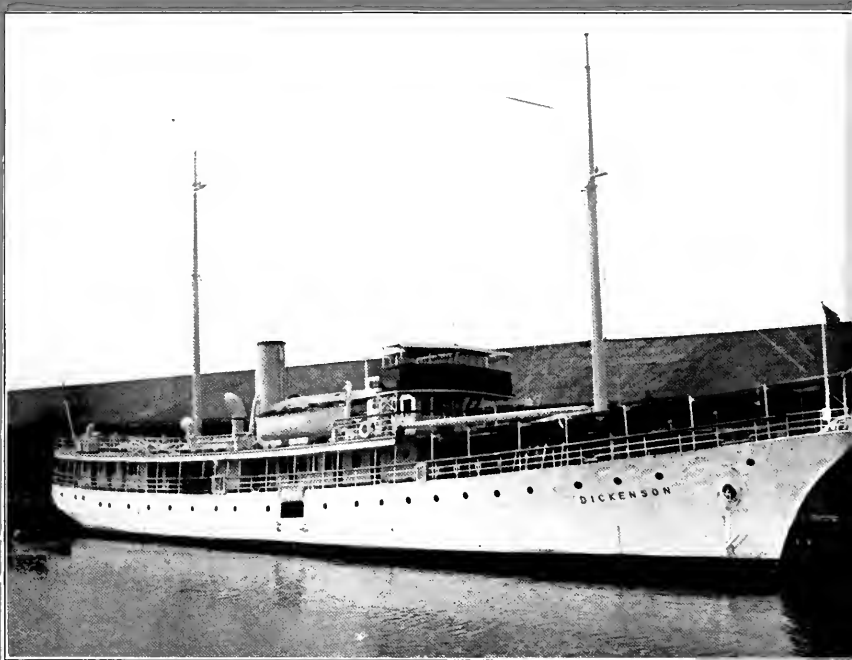
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Pacific Marine Review

The National Magazine of Shipping

VOLUME XXXI

FEBRUARY, 1934

NUMBER 2

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*Official Organ
Pacific American
Steamship Association*

James S. Hines
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Bernard N. De Rochie
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Member of Pacific Traffic Association

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of the Pacific Coast*

Alexander J. Dickie
Editor
M. J. Suitor
Asst. Editor

Chas. F. A. Mann, Northwestern Representative, 1110 Puget Sound Bank Bldg., Tacoma, Washington.



Henry H. Heimann, Director, Shipping Board Bureau of Department of Commerce.

partment of Commerce, careful studies, under the direction and supervision of the Secretary of Commerce, have been made of Shipping Board and Merchant Marine problems by two committees. These two committees are: the Advisory Committee to the Secretary of Commerce on Shipping Board and Merchant Marine, composed of Admiral H. I. Cone, General Charles McK. Saltzman, and Thomas Woodward; and the sub-committee on the Shipping Board Bureau of the Business Advisory and Planning Council, of which sub-committee Mr. Heimann has been Chairman.

In line with these studies, the Secretary of Commerce announced today that these services are being organized as a regular Bureau of the Department and that Mr. Heimann had been appointed Director of the Shipping Board Bureau. The Departmental Advisory Committee, comprising Admiral Cone, Charles McK. Saltzman, and Thomas Woodward, will continue in an advisory capacity to the Secretary and to the Director of the Shipping Board Bureau.

The major fiscal and credit problems facing the Shipping Board Bureau have led the Secretary of Commerce to draft Mr. Heimann from his present position as Executive Manager of the National Association of Credit Men, the outstanding credit organization in the United States. Mr. Heimann assumes his new duties by and with the consent of the Board of Directors of the Association.

Mr. Heimann was born at Aviston, Illinois, September 26, 1891. He attended St. Louis University, St. Louis, Missouri, specializing in business administration. After completing his business administration course, he engaged in business for several years before reentering St. Louis University, from which he was graduated in 1914 with the degree of Bachelor of Laws.

He was admitted to the Missouri bar in 1913 before his graduation from law school. After several years' experience in public accounting, Mr. Heimann entered

the employ of the Kawneer Company in Niles, Michigan, in 1917, as general accountant. He served the Kawneer Company and subsidiary companies respectively as auditor, treasurer, and vice president. In September, 1931, while serving as president of the National Association of Credit Men, he was selected by this organization to serve as executive manager. Previous to this, he was national director and vice president of the National Association of Credit Men. Since June, 1933, Mr. Heimann has served as Secretary of the Business Advisory and Planning Council for the Department of Commerce.

Statement of Policy

HENRY H. HEIMANN, newly appointed Director of the Shipping Board Bureau of the United States Department of Commerce, is no stranger to the Pacific Coast and its peculiar shipping problems. In his official connections both with the Kawneer Company, and with the National Association of Credit Men, he has visited the Pacific Coast centers twice a year for some years back. At the suggestion of *Pacific Marine Review* he very graciously prepared for us the following statement of his views as to the broad general policy to be followed in the organization of his Bureau for assistance to and development of a well-balanced American Merchant Marine.

"The need and value of an adequate American Merchant Marine requires no argument. There is, however, a considerable difference of opinion regarding the best means of developing a sound American Merchant Marine. It should be the desire of the shipping industry, as well as the Government, to sponsor policies which will result in a sound development program. Out of the experiences of past years and a recognition of the errors of those years, as well as an appreciation of the policies that have been helpful, it should be possible to lay down a broad development program that will accomplish the purposes of the Government's shipping policy.

"A first step in this direction is necessarily the organization of the Shipping Board Bureau of the Department of Commerce along lines which will enable the work of this Bureau to be handled in an impartial and business-like manner. That question is receiving the most careful consideration and the work of organization will be accomplished as speedily as possible.

"I am, personally, of the opinion that the American shipping industry needs Governmental assistance, but that that assistance should be given in such a manner as will actually promote, rather than retard, the sound development of a national merchant marine. I am sure that the industry will recognize that the extension of such Governmental assistance implies mutual considerations both to the industry and to the Government."

An Open Letter to President Roosevelt

Pacific Marine Review,
Seattle, December 31st, 1908.

To the Honorable the President of the United States, Mr.
Theodore Roosevelt, the White House, Washington, D. C.—

Sir: Proposed suspension of navigation coasting laws of the United States between the mainland and non-contiguous Territory of Hawaii.

It is respectfully noted that the President's message to Congress, now assembled, contains a recommendation that the coasting laws of the United States, in respect of passenger traffic, between the mainland and the Hawaiian Islands, be suspended, and, without wishing to appear presumptuous, we venture to address you in protest.

Although this communication emanates simply from this office and is unprompted by any particular interest, it is consistently felt that the relationship which the Pacific Marine Review bears to the shipping and allied interests of the Pacific Coast gives us a "status quo" even in a question of such delicacy as to ask the chief executive of the nation to show cause for a recommendation to Congress which, it believes gravely imperils the interests it assumes to represent.

In view of the passenger and cargo services provided by the Pacific Mail Steamship Company, the Oceanic Steamship Company, the Matson Navigation Company and the American-Hawaiian Steamship Company, in steamers of American register, we are unable to discover that there is any real foundation for complaint or that the interests of the Hawaiian Islands suffer.

We are officially informed that the Matson Navigation Company of San Francisco is preparing to construct a new freight and passenger steamer, 450 feet in length, with a speed of 15 knots, estimated to cost \$900,000, to enter commission in January, 1910, a contemplated addition to their fleet which must be abandoned, and work in consequence withheld from American shipbuilders should Congress suspend the coasting laws, as by the President requested.

We would remind you, respectfully that American registers, in competition with foreign registers, have almost become extinct in our trans-Pacific trades and that the few services which remain under the flag of the United States, for example, the Pacific Mail Steamship Co., are continued at a great loss to their owners, and in this particular connection it is believed that the portion of the voyage between San Francisco and the Hawaiian Islands assists to some extent to compensate for the unremunerative total trans-Pacific voyage, and, therefore, that in withdrawing these coasting privileges from vessels of the United States you would thereby deprive these of a remunerative portion of their voyage and add to their foreign competitors, e. g., Japanese steamship lines, a remunerative detail, from which they are now justly excluded, and to that extent increase,

aid and abet their present competition in the total trans-Pacific foreign voyage.

The reservation of coasting trades is internationally recognized as a birthright of all nations and the disturbance thereof is always a dangerous precedent. Furthermore, temporary suspensions provoke a feeling of uncertainty and repel the necessary confidence so inseparable from the shipping industry where the first cost of construction is so great and the subsequent maintenance so expensive, and where the preparation for terminal facilities, traffic agreements and connecting services entails so much pre-expense and pre-arrangement.

The result of uncertainty so provoked is well exemplified in the repeated suspension of the coasting laws between the United States and the Philippine Islands, capital lacking the necessary confidence to provide the necessary equipment and preparation.

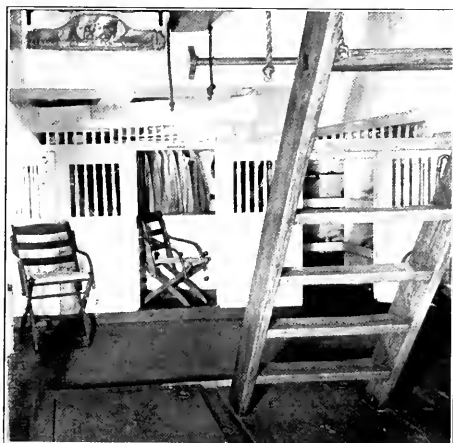
We are aware that the Honolulu Chamber of Commerce has placed itself on record as recommending the suspension of the coasting laws hereinbefore indicated, but we recall that the same chamber previously recommended their continuance, and it must not be forgotten that foreign trade and commercial interests are still influential in the Hawaiian Islands.

It is believed that this subject was first brought into public prominence in or about July 1907, when a certain member of the House of Representatives, on a visit to the Hawaiian Islands, who was unable to proceed at a moment's notice in a passenger steamer on the American register to attend the sick bed of his wife, proceeded in one of the Toyo-Kisen Kaisha steamers, paid the consequential fine, and immediately and selfishly without regard to national consideration, became an active delegate for the suspension of the United States coasting laws between the mainland and the Hawaiian Islands, so urging, we believe, upon the Secretary of Commerce and Labor.

Finally, we respectfully submit that the trade and commerce between the United States and the Territory of Hawaii has expanded sufficiently well to justify the construction of further ships on the American register, as indicated by the proposed addition to the fleet of the Matson Navigation Company, and or to justify the assignment to these trades of ships already built on the American register; for example, the ships of the Oceanic Steamship Company, previously engaged in the Australian mail service, but withdrawn in view of excessive losses and under stress of foreign competition, and that now to suspend these coasting laws would prevent consequences and rearrangements that must otherwise necessarily follow.

Respectfully,
PACIFIC MARINE REVIEW,
H. B. Jayne, Publisher and Editor.

FOR 30 YEARS PACIFIC MARINE REVIEW HAS DEFENDED THE INTERESTS OF THE AMERICAN
MERCHANT MARINE ON THE PACIFIC COAST.

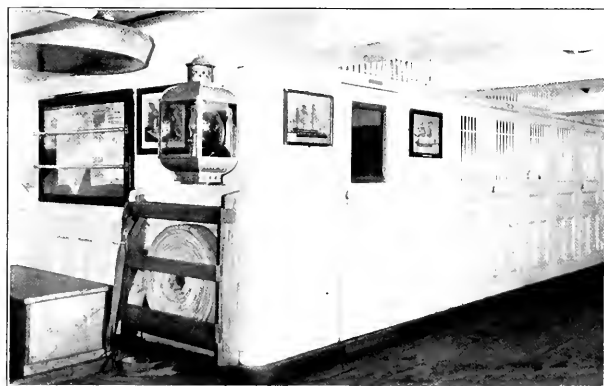
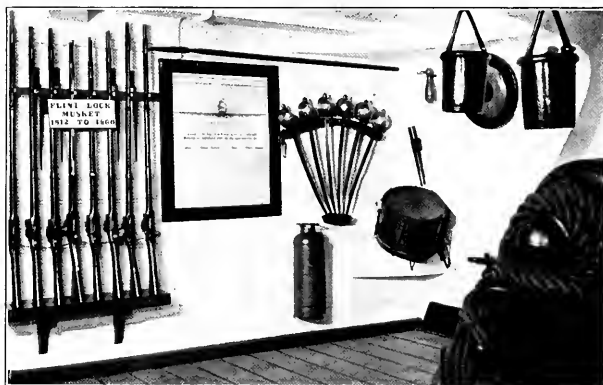


U. S. Frigate Constitution

*A Pictorial Record of Old Ironsides
through the Medium of Modern
Photography*

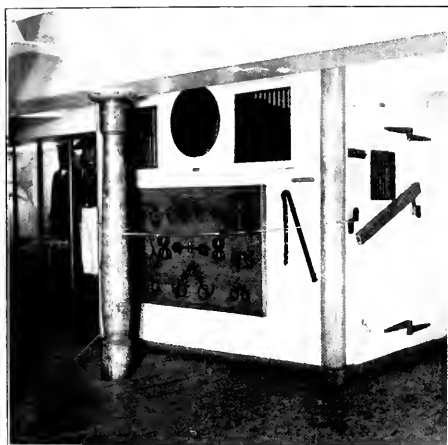
By F. H. Wheelon,
Artist Photographer

Above: The midshipmens quarters on the half deck above lower hold and below the wardroom. At right: The after bulkhead on the main gun deck showing from left to right, an assortment of flint lock muskets, a boarding pike, a stand of cutlasses, the drum, rattle and gong, for calling to battle stations.



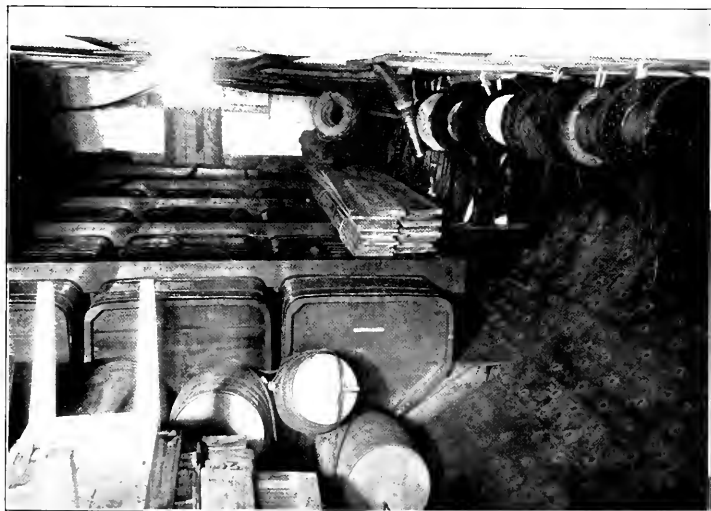
Wardroom officers quarters. Note the ventilating grills. All air available came into these rooms by these grills. The flat pan suspended from the deck at upper left corner is the ward room officers bath. Note also the whale oil lamp fixture.

The hospital or sick bay. Minor operations were carried on with the patient sitting on the operating chair shown. For major operations the patient was usually lashed down on a hatch top. Note the size of the surgical chest or case. One important item was the black-jack, used as an anesthetic.



The "brig" or prison. On the wall board in center is a display of various forms of leg and arm irons, handcuffs and bracelets and on the wall at right of this board the dreaded "cat-o-nine tails." In the old navy days discipline was strict—punishment swift and sometimes cruelly severe—a condition no doubt partly responsible for the characterization of that period—the days of "wooden ships and iron men."

View in the after hold showing the cedar tanks for drinking water storage and the method of securing them firmly in place on the ships planking. Note the copper fastenings of the planking.



Our International Trade

Is it an Economic Necessity or only an Expensive Luxury?

By Dr. Willard L. Thorpe

Director, Bureau of Foreign and Domestic Commerce, U.S. Department of Commerce

Some amount of fire and great clouds of smoke have been generated by discussions in recent months concerning whether America is embarked on a program of nationalism or internationalism, of isolation or of world cooperation. Fundamentally nationalism is an underlying psychological state, and as such is subject to continual variation in intensity. Thus the nation as a unit assumes great importance in men's minds during war times; and, often in reaction to such feeling, the immediate post-war period may show a corresponding adherence to the concept of internationalism.

The belief that the world is tending toward nationalism has come to the fore during recent years because of the fact that a great many countries seem to have adopted economic policies which are governed solely by internal considerations. Perhaps the most apparent phase of this development has been the rapid erection of trade barriers throughout the world. These barriers represent attempts to make economic and political boundaries coincide.

In some cases, increased tariffs have been levied for revenue purposes, particularly in those countries where foreign trade has customarily provided an important source of income to the national treasury. More often, however, the pressure has come from various domestic industries clamoring for protection. With the domestic markets restricted by the decline in purchasing power and with the existence of large numbers of unemployed, the feeling against imported commodities is naturally accentuated. Slogans urge the purchase of domestically produced products. This whole attitude has been a strong contributing factor to the rise of barriers.

Perhaps most important of all is the effect of debt burdens, declining prices, and the cessation of foreign loans on international balances of payment. Countries have suddenly found themselves with unfavorable balances of trade, threatening them with serious loss of gold and with greatly weakened financial and currency structures. They have therefore attempted to meet this situation by attaining a closer commodity balance. This might be accomplished by employing special devices to encourage exports, as is now being done by countries such as Germany and Austria, but the more usual method is to restrict imports by one means or another.

● Trade Clogging Devices

General tariff increases have not always been feasible. And any other procedure was presumably limited by the most-favored-nation clause in many commercial treaties. Under this clause, treatment by Country X which is favorable to Country Y is automatically extended to all other countries with which there are such treaties. Many ingenious devices have been developed

for meeting this technical difficulty. These range all the way from such minor matters as sanitary regulations, consular and invoice fees, internal taxes differentiating between domestic and imported products, regulations concerning valuation classification, parcel post regulations, and the like, to more general procedures such as exchange restrictions and quota limitations. In this complex and bewildering situation it's a wonder that any foreign traders have kept their sanity. And as far as trade itself is concerned, Secretary Hull well described the situation when he recently said at Montevideo: "International trade is hopelessly clogged with prohibitions, embargoes, quotas, and other arbitrary restraints".

● Commodity Trade Balance

One particular feature in recent commercial diplomacy deserves special mention—the idea of developing a balanced commodity trade between individual pairs of countries. In a number of instances, such as Argentina, Poland and Rumania, the quotas or exchange permits are so adjusted as to encourage balanced trade with each separate foreign country. Thus, by balancing trade with each country, the total is brought into balance.

This attempt to create an equality of exports and imports has led in fact to further restrictions on the volume of international transactions. In the case of Argentina, for example, the United States in 1932 exported \$31,000,000 of goods, and imported \$16,000,000. If, therefore, Argentina takes the position that we may sell her only the volume which we buy from her, this means that, unless we increase our purchases, our exports must be cut in half. To be sure, some other country may be permitted to increase her shipments to Argentina, but that was permitted to all countries even before the restrictions. In many other instances, the situation may be even more critical. If the same principle be applied to our economic relations with Poland, it means that, unless we increase our purchases, we must reduce our exports to less than one-fifth.

The extension of these limiting devices, if carried to their extreme, undoubtedly will lead to a gradual strangulation of international trade. Ordinarily, domestic and foreign trade move in parallel fashion. But under the high trade barriers, foreign trade of the various countries of the world will find it difficult to parallel domestic improvement which is so widespread among the various nations.

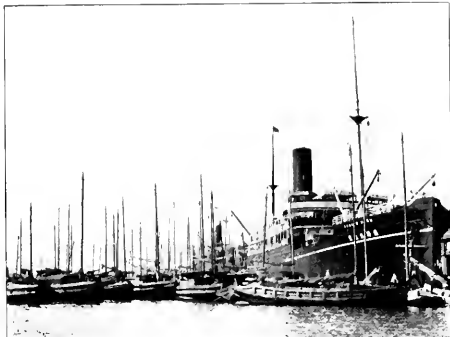
That any prolonged continuation of this trend is possible seems to me absolutely unbelievable. The point will necessarily come where the procedure will break

down; and already there are signs of real tendencies in the opposite direction. The nationalist who talks of isolation has certain factors set directly against him—differences in natural resources, climate variations, efficiency and adequacy of labor supply, and the differential created by an early start. It has often been said that the United States, because of its size and the variety of its climate and resources, is peculiarly fitted to draw away from international economic relations with other countries. Any careful study shows that such an idea is absolutely absurd.

● Permanent Isolation Impossible

Of our 25 chief imports, together accounting for close to two-thirds of the total value of our import trade in recent years, fully twenty are commodities which either are not produced at all in the United States (coffee, silk, rubber, bananas, tin), or in quantities far from sufficient to meet domestic requirements (sugar, newspaper, furs, tobacco, hides). The mere statement of these items, or even an attempt to measure them in dollars, is no criterion of their real importance to the country. It is easy to point to rubber, and comment on the endless ill effects which would result if we were unable to import our billion pounds per year. But add such other items less heralded—items such as antimony, camphor, chromium, cork, graphite, iodine, platinum, quicksilver, quinine, shellac—and the costs of isolation become apparent. Turning to our export trade we note that of our 25 chief exports, accounting for well over two-thirds of the value of our total export trade during recent years, the preponderant majority is made up of products which fall in either of two categories. First are those products of which our natural resources or favorable climate and soil make us quantity producers upon whom other countries have come largely to depend (raw cotton, refined petroleum products, leaf tobacco, coal, wheat, fresh apples, canned fruit, lumber, copper). Second are the products embodying mechanical ingenuity, usually most efficiently developed under the large scale mechanized conditions of production stimulated by the size and purchasing power of our home market (automobiles and parts, electrical machinery, ordinary cotton cloth, photographic products, metal working machinery, structural iron and steel, agricultural machinery).

Of secondary importance, but almost unavoidable ex-



A Japanese steamer discharging Pacific Coast cargo to sampans in an Oriental port.

port products there is quite a list of commodities which are incidental by-products appearing in quantities far beyond domestic requirements, e.g.: cotton linters and cottonseed oil from the growing of cotton; oleo oil, sausage casings, and bones from the meat packing industry; benzol from the coal-tar industry; canned sardines from the fish-oil and fish meal industry.

If we examine the record industry by industry, it is apparent that in many cases the United States has developed her capacities in excess of domestic requirements, and consequently finds exports indispensable for the generally profitable operation of industry. Permanent curtailment of exports means loss of much invested capital and a very severe problem of labor, absorption of workers the products of whose labor customarily go into foreign trade. For other countries whose geographical area is less varied and whose domestic market is necessarily much smaller, any actual isolation policy becomes even more absurd than for the United States.

● International Conferences

One recognition of this situation has come with increasing use of the conference method among nations. To be sure, the conferences have not accomplished all that many have hoped from them, but in many spheres of activity, international action has actually been accomplished. That the United States has by no means abandoned this avenue of approach to the problem is indicated by the resolution introduced by Secretary Hull at the Pan American Conference recently, urging what he described as "economic disarmament". The resolution calls for "substantial reduction of basic trade barriers and liberalization of commercial policy," and is offered as a basis for a possible multilateral agreement.

In the last several years most international action has taken the very specialized form of the development of reciprocal trade negotiations by individual pairs of nations.

On this matter, the President has expressed himself on several occasions. In various public utterances he has taken the position that wise policy in this field "Consists in a large measure in negotiating agreements with individual countries, permitting them to sell goods



Ships of the world load lumber in ports of the Pacific Northwest. Here are a few at Grays Harbor, Washington.

to us in return for which they will let us sell to them goods and crops which we produce".

He has stated that we must proceed "on the basis of a reciprocal exchange of goods, allowing other nations to buy and pay for our goods by sending us such of their goods as will not seriously throw any of our industries out of balance; and, incidentally, making impossible in this country the continuance of pure monopolies which cause us to pay excessive prices for many of the necessities of life".

This policy of developing trade agreements has not merely received lip service; exploratory discussions have been initiated with Argentina, Brazil, Colombia, Cuba, Sweden and Portugal, to see if a satisfactory basis for reciprocal tariff negotiations can be developed.

● Liquor Imports

One particular aspect of this problem has come to the fore during the last two weeks, as a result of the repeal of the prohibition amendment. There can be little question but that there will be considerable demand by consumers here for alcoholic beverages produced in foreign countries. Opportunities in this new market may become an important element in trade negotiations. In order to permit of such negotiations, a quota system was introduced into the code and marketing agreement for liquor importers. For the time being, liquor will be admitted according to quotas, determined on the basis of importation during the period 1910 to 1914, with certain exceptions and additions for peculiar cases such as those countries which entered the international liquor trade since the War. Permits have been issued to importers on this basis specifying the imports allowed to each type of liquor and country of origin. The code and marketing agreements are so worded that the quotas fixed on the pre-war base may be regarded as setting minimum quotas rather than alternative ones. An increase in quotas is permitted where a satisfactory trade agreement has been concluded with a foreign country. A considerable number of negotiations are under way at the present time. Congressional action at some later time may be such as to permit the utilization of this new market as a basis for negotiating on a more permanent basis.

Great accomplishment by the means of reciprocal trade agreements is a much simpler problem for countries of small area, where many commodities must of necessity be imported. In such cases, concessions can be made without serious domestic opposition. But in the United States the obstacles are tremendous. Almost every commodity considered has its particular group with a vested interest. While the concessions granted will always be protested by the particular groups interested, reciprocal trade agreements should be regarded as satisfactory when the advantages gained by removal or lowering of foreign barriers to American goods more than outweigh the disadvantages to our economic structure. We can not expect to get something for nothing. But a proper reciprocal trade agreement should result in decided net benefits to both countries involved.

● No Centralized Responsibility

The process of entering upon negotiations with for-

eign countries has brought clearly into the light the fact that various sectors of the field of international relations are scattered all through the Government. The Departments of State, Treasury, Agriculture, and Commerce, the Tariff Commission, the newer organizations of N.R.A., A.A.A., and R.F.C. all are part of the picture. There was no point where responsibility was focussed. As a result, there has been established an Executive Committee on Commercial Policy to endeavor to coordinate the branches of the Government, looking towards a coherent commercial policy. A further step in this direction is the assignment of Mr. Peek to the task of preparing a program for future action in this field. This development is fundamental to any effective work of the Government in the field of international relations.

The problem is one of wisely and judiciously dovetailing domestic interests and international relations. It is much like the problem which any man faces when he takes unto himself a wife. His problem is one of so adjusting his domestic program with his outside relationships as to bring about the most satisfactory existence. It would be impossible to conceive of his setting up either of these relationships as exclusive of the other. Nor are they necessarily antagonistic. Thus, for the nation we must develop a policy which will be considerate of our domestic economic structure and sympathetic with international economic relations. What this actually means is that foreign trade must be developed wisely and intelligently on the only basis possible; namely, a balancing of income with outgo, having in mind the needs of the domestic situation.

● Trade Balancing

Of course, if we include all the invisible items such as shipping, immigrant remittances, subscriptions to "Punch", and credit items, our foreign trade must balance. But a great deal depends upon the character of the items included. You are all familiar with our own record. We have had an excess of merchandise exports consistently since the war. Up to 1922, this was roughly balanced with gold imports. Then came a period when we were taking enormous quantities of foreign securities. When the investment market disappeared, the balance was met by the extension of short-term credit. In recent months, it has been accomplished by the transfer of deposit funds and other current assets from this country to other areas. But this is no permanent situation of balance. We have never faced the full implications of our new position as a creditor nation, that it necessarily means either that we must increase greatly certain invisible items, such as the use of foreign ships, or travel in foreign countries, or that we must be prepared to accept more commodity imports relative to exports.

While I know that we are all delighted at the splendid increases in the volume of exports shown during the last several months, there is nevertheless the nagging question of just how they will be paid for. If such a wide discrepancy between exports and imports as has appeared in recent months continues for any considerable period, it will create a very difficult situation.

At the moment, therefore, the problem is to find markets for foreign goods in this country, such that they will not result in serious damage to our own economic

structure. In turn we will find outlets abroad which will permit the development of our potentialities in export trade.

Our attitude on the problem of trade barriers is tied to our traditions and to the economic structure as it now exists. I know of no economists—even those who are the most rabid free traders—who are so foolish as to urge the sudden and complete abandonment of American tariff schedules. The shock and dislocation in our system would be too great.

There may be value in examining a page in British history. England found herself with virtually prohibitive tariff duties, in the middle of the 18th century. In 1786, the first gesture away from this situation was made when duties relating to trade with France were lowered. This was, of course, brought quickly to an end by the French war. The next step came in 1825, when William Huskisson succeeded in convincing the country that no industry needed more than a 30 per cent protection. In 1842, under Peel, the maximum was reduced to 5 per cent on raw materials, 12 per cent on partially manufactured products, and 10 per cent on manufactured products. In 1846 he succeeded in actually eliminating the corn laws, and incidentally eliminating himself from the political picture. These Laws had been the heart of the tariff controversy in England for thirty years. Finally in 1860 a tariff was passed in which protection was provided on only 48 articles.

Thus, the British record is that the transition from protection into free trade extended over a period of 75 years. It is also interesting to note that it was in this same period that England was making her extensive loans abroad, the accumulating interest on which made more and more necessary the free entry of foreign goods. Her transition into so called "mature creditor" stage was gradual. In this country it has been a most sudden transition. The British adjustment could be made gradually, but we are forced to make more haste.

The fundamental reason why international trade is so important is that without it we must anticipate a lower standard of living. Take the extreme case of the individual who insists upon no economic exchange with others. He may be able to raise his own food and make his own clothing, but he necessarily gives up automobiles and radios and movies, and even such more simple matters as variety in diet.

The same is true of a community or a country which

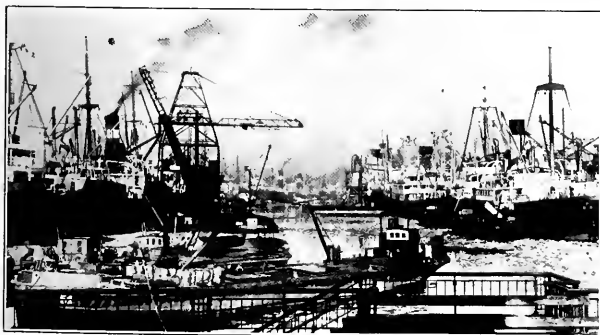


The "great ditch" at Panama has had a profound influence in developing foreign trade on the Pacific. Here we have a Pacific Coast liner in one of the locks.

insists upon a program looking towards self-support. Secretary of Agriculture Wallace has, on a number of occasions, made the statement that, if foreign markets for American agricultural products are entirely closed and the country's economy reduced to a domestic basis, about 50-million acres of land now under cultivation would have to be abandoned.

There is no way of estimating exactly what the effect would be in the world if the barriers to trade continue to be raised more and more. But for many countries it would mean a tremendous decline in the standard of living. We are by no means exempt from this same conclusion. The first step toward sound revival in foreign trade is to face the facts. Once we agree on the conditions which must underlie our commercial policy in the future, a tremendous advance has been made.

[Abstract of an address before the American Manufacturers Export Association, New York, December 15, 1933.]



Since the opening of the Panama Canal a great direct-by-sea trade has been developed between Pacific Coast ports and the ports of all Europe. Here is a recent view of the busy port of Bremen.

The Use of Refrigeration in the Carriage of Pears

By David W. Dickie

Supplementing the article in the October 1933 issue of the Pacific Marine Review concerning the carriage of pears by water it has been suggested that a modern refrigeration installation be used to illustrate the problem.

One popular scheme at the moment consists of using ammonia gas NH_3 as a refrigerant to cool brine which is piped to the coil chamber in the reefer box. Air is circulated through the coil chamber and the reefer box to transfer the heat from the box to the coil.

The ammonia (NH_3 , one part of nitrogen and 3 parts of hydrogen) comes in the form of a gas from the brine cooler or evaporator to the compressor where it is compressed from a relatively large volume into a comparatively small volume but still remains in the form of a gas. The pressure of the gas is raised considerably by this process and as the heat contained in a large volume of gas is compressed into a small volume the temperature rises.

After compression the ammonia gas goes to the oil filter where the lubricating oil that lubricates and also seals the compressor is removed from the gas. The lubricating oil is unavoidably entrained in the ammonia gas and has to be filtered out and there is some liquid ammonia caught in the filter also.

From the filter the ammonia gas is piped to the condenser which consists of several banks of tubes, each bank enclosed in a jacket. The gas passes from jacket to jacket, entering at the top and leaving at the bottom in the form of a liquid.

From the bottom of the condenser the liquid ammonia is piped to the top of the receiver, the liquid falling to the bottom and the entrained gas rising to the top.

The liquid ammonia in the receiver and under pressure from the compressor is liberated through an Expansion Valve into a pipe leading to the brine cooler or evaporator.

Several methods are used by means of expansion valves to atomize the ammonia from a liquid into a mist or fog so that part of the ammonia is evaporated into a gas which acts as a conveyor to carry minute globules of liquid ammonia held in suspension.

1st—A needle valve set by hand permits a definite quantity of ammonia to gurgle or flow into a chamber from which it is driven through a nozzle having a small orifice ranging in size from $1/32"$ to $5/32"$ depending on the capacity of the plant.

2nd—Number 2 is the same as Number 1 except that instead of the needle valve being set by hand, the hand wheel actuates a spring which adjusts the tension on a diaphragm controlled by the difference in pressure on the two sides of the Expansion Valve. The diaphragm in turn controls the needle valve.

3rd—In Number 3 the valve seat itself has an orifice about .0875" diameter and the valve is in the form of a disc that slides up and down on the face of the seat closing and opening the orifice under control of a diaphragm as described in Number 2. A series of enlarging tubes beyond the orifice provides the nozzle to turn the kinetic energy into velocity.

The heat in British Thermal Units that was enclosed in a relatively small liquid volume in the receiver is now occupying a comparatively large space in the expansion chamber jackets of the tube bank sections of the brine cooler or evaporator so the heat in BTU's per cubic foot is very small.

The heat that is in the brine flowing through the brine system passes through the metal walls of the water tubes of the brine cooler into the ammonia in the jackets surrounding the water tubes and evaporates the atomized ammonia into a gas.

The heat is then carried back to the compressor in the gas as it travels along. Also the walls of the compressor are fitted with a water jacket and part of the heat that was removed from the brine in the evaporator is carried off by the cooling water that is circulated through the waterjacket of the compressor.

● Removing Heat From Stored Substance.

The only task in refrigeration is to find a simple efficient way of removing heat from the substance in storage.

The brine part of the system consists of circulating water heavily laden with calcium chloride through the tubes of the brine cooler or evaporator. The evaporator is the same as the condenser of the ammonia part of the system with the exception that the atomized ammonia and the ammonia gas of low temperature enter at the bottom and by means of the heat taken from the calcium chloride brine is evaporated and leaves in the form of a warm gas at the top.

The brine is pumped from the storage tank to the evaporator where it gives up its heat to the ammonia fog or mist, then to the coils in the coil chamber of the reefer box and back to the storage tank.

The air in the reefer box is circulated by means of a fan between the coils carrying the brine where it gives up its heat to the brine and then through the cargo where the air gathers a fresh quantity of heat given off thereby and carries it through the fan to the coils again.

Formerly, and in some cases it is still done, the ammonia gas was circulated through the coils in the reefer box coil chamber but it must be admitted that where insufficient attention has been paid to design of the coils and workmanship in assembling them, leaks will occur that will cause trouble and spoil cargo.

The reefer box is usually arranged in the form of a rectangle with a corridor on each side and the coil chamber at the end so the air is drawn from one corridor through between the coils and along the other corridor. The air passes through the cargo from the corridor on one side to the corridor on the other.

A ventilator system is provided to supply fresh air on the suction side of the fan and an outlet for the vitiated air on the delivery side thereof.

Where passengers are carried on the ship it is customary to use carbon dioxide (CO_2) in place of ammonia (NH_3) in the system and the different gas requires different surface capacity to make the heat transfer from the brine to the gas and from the gas to the circulating water in the condenser.

● Pre-cooling

The tendency of fruit to spoil when carried on long voyages makes it practically imperative that it be pre-cooled. Bulletin 290, U. S. Department of Agriculture, February, 1932, says:

"Physical and chemical changes continue to take place within the pear after it is picked. It has been found that in Bartlett pears, from the time of picking until full ripe, there is a decrease in such substances, such as pectose, which gives rigidity to cell walls, which may account for the softening of the flesh during the ripening period. The acid content of well matured fruit remained about constant during storage, and all pickings exhibited an increase in sugars while ripening in storage."

Under natural conditions the stimulus which leads to the coloring and eventually to the blackening of the pears is given from within the fruit by the liberation of the characteristic ester of the pear, which acts as a powerful hormone. This is why "it is desirable to use a temperature low enough to nearly suspend physiological activities in the fruit."

Pears, therefore, should be precooled on shore at a refrigeration terminal by one familiar with the above mentioned physiological activities.

The process of precooling pears requires that the cases be stacked with an air space between them of 1 inch to 1½ inches all around.

The temperature in the storage room is lowered to

about 33 degrees Fahrenheit for the first day and then reduced to 32 degrees. The fan that supplies fresh air to the room is not a large affair like the one on a refrigerator ship but of proper size to renew the air in the room at least once in six hours or less and should be run continuously all the time, supplying fresh air.

The humidity of the air is stepped up right at the start to between 85 per cent and 95 per cent to prevent any moisture from evaporating from the fruit and is held that way by sprinkling the floor, blowing water through an atomizer by pressure from a pump, defrosting a part of the coils, or a combination of all of them, until the fruit shows signs of reacting to the lowered temperature whereupon the humidity is allowed to fall to between 80 per cent and 81 per cent and is kept at this figure permanently until the fruit is ready to ship. The reaction referred to above is that the fruit shows signs of having exhausted its tendency to generate carbon dioxide and give off heat.

● Humidity

Unfortunately humidity is neglected in the operation of the reefer box aboard ship and from all appearances it is not necessary to look beyond this phenomenon for most of our troubles.

The usual way a reefer box is prepared for being occupied by fruit is that it is closed tightly and the refrigerator system run full power for two days or so with the temperature held low enough that the reefer box will register the temperature required for the particular fruit. The loading covers a period of approximately two days requiring that the hatches be open. The result of having the hatches open for loading is that the temperature will rise from 10 degrees to 15 degrees Fahrenheit above that formerly obtaining in the reefer box and it is usually three to four days after the hatches are closed for the last time before the reefer box temperature will be down again to the temperature specified in the first place. If the fruit has been precooled the latter time is shortened considerably because the physiological activities mentioned before have been practically suspended and that burden has not been loaded on an installation that was not designed for it in the first place.

Usually no effort is made aboard ship to put a coat



One of the four new intercoastal passenger and cargo liners of the Grace Lines. These vessels have modern refrigerating plants ideally equipped to maintain right conditions.

of frosting on the coils at the time the temperature of the reefer box is brought down to that necessary for the carriage of the fruit and the first operation that takes place on the voyage is that the coils build up a coat of frost.

Assume a reefer box of about 38,000 cubic feet capacity loaded with fruit occupying 27,100 cubic feet leaving 10,900 cubic feet for air space. The number of grains of water per cubic foot in saturated air at say 44 degrees Fahrenheit is 3,322 grains and in 10,900 cubic feet there would be 36,210 grains. As there are 7000 grains in one pound avoirdupois there are only 5.173 pounds of water in the air total.

To get an idea of the amount of water necessary to put a normal coat of frost on the coils we will assume that the box has six coils consisting of approximately 640 feet of straight pipe each and that the coils are 1 7/8 inches outside diameter. That two of the coils accumulate a coating four inches outside diameter, two accumulate a coating three inches diameter and the other two are bare due to being defrosted in the usual operation of the plant. Also assume that the frosting weighs about the same as snow 12 pounds per cubic foot. The frosting four inches diameter on 1280 feet of pipe (two coils) would weigh 146 pounds and the frosting three inches diameter on 1280 feet of pipe (two coils) would weigh 46 pounds, a total of 192 pounds of water.

The only places where 192 pounds of water can come are:

1st—The amount that is in the air in the reefer box 5.173 pounds;

2nd—The amount that comes in with the air that is renewed each day;

3rd—The moisture in the fruit.

The only data available seems to indicate that it takes sixteen days approximately for the coils to accumulate the normal amount of frosting from the above sources and in the meantime the humidity in the reefer box is less than that required to properly care for the fruit.

Since 192 pounds of water must be accumulated before the normal operation of the reefer box becomes an actuality what could be more sensible than putting a normal coat of frost on the coils before any fruit is loaded. To do this it is only necessary to pull the temperature of the brine down to 16 degrees Fahrenheit or lower and admit fresh air to the coils in a continuous stream when the reefer box is being cooled in the first place. Additional moisture can be added by placing a bucket of clean water so the delivery from the fan will blow over the surface of the water. Having given the coils a heavy coat of frost it will be necessary only to follow the normal procedure of defrosting two coils of the six in regular order to avoid evaporating any moisture from the fruit.

● Changing Air

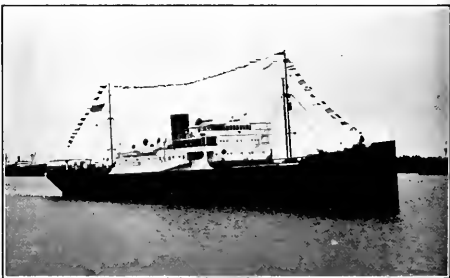
Considerable discussion has taken place as to the relative merits of changing the air in the reefer box at intervals or having a continuous stream of air constantly entering and leaving it. From the experience that has been gleaned to date the method of changing the air continuously seems to be preferred. Take a specific case during the period of the voyage when the humidity within the reefer box is not up to the full requirements

for the fruit and no effort has been made to supply moisture artificially. The evaporation of part of the moisture from the fruit would cause the temperature therein to fall. Then the admission of fresh, warm, humid air at any specified time would cause the temperature within the fruit to rise again. The raising and lowering of the temperature within the fruit causes the moisture to expand and contract thereby squeezing the fruit internally twice every time the air is changed. On the other hand if there is a constant stream of fresh air entering the reefer box all the time there are no violent temperature changes taking place at any time and further there is a constant supply of moisture coming in all the time to take the place of that draining from the brine coils.

● Humidity Record

A great deal can be said in favor of a hygrometer that would record the humidity of the air in the reefer box at all times. An instrument of this kind should have a wet and dry bulb thermometer and a separate pen to record the temperature of each bulb. The humidity is figured from the difference of temperature of the wet and dry bulbs. Most of the American instruments are equipped with a circular card ruled for either one or seven days. The advantage of one-day cards is that at midnight when all the clocks on the ship are changed with respect to time a fresh card is put on and the difficulty of correcting the position of the card with respect to time is avoided. The seven-day card has to be rotated ten minutes or so to correct it with the ship's clock at midnight which is perfectly satisfactory provided it does not have to be turned back. To avoid having the continuing record overlap the previous one some of the steamship companies have the cards ruled without the time figures and when it is necessary to make a change in time the card is turned ahead one space to the next hour and the correct time marked on the card with the reason for the change. By doing this the hygrometer clock is made to check with the ship's clock at all times. The hygrometer has to be mounted in a shock proof frame or the vibration of the ship will cause it to be inaccurate.

A fortunate feature of having the air circulating system actuated by a fan is that there is always a good breeze blowing in the corridors where the readings are taken. Hence with an ordinary wet and dry bulb thermometer the two readings can be taken at the regular two hour intervals, provided the wick on the wet bulb is kept wet and clean.





Marine Equipment

MARINE STAINLESS STEEL ~ GAS INDICATOR
DIESEL TRAIN ~ TURBINE DRIVE PUMPS

Some Advantages of Stainless Steel in Marine Applications

Notwithstanding the slow economic pace in the last few years, stainless steel is continuing to find new commercial applications, and now many industries are taking advantage of this distinct contribution in modern metals.

The remarkable resistance offered by these steels to a wide variety of corrosive media is largely due to the element chromium, a metal of brilliant silvery lustre, almost approaching platinum in color, and which does not tarnish even in moist air. This element when alloyed with steel, in amounts of approximately 12 per cent or over, imparts to the steel the corrosion resisting properties of chromium itself. To provide unusual physical characteristics in addition to the corrosion resistance furnished by the chromium, nickel is by far the most important of all the other elements that can be added to stainless steel. Hence, when an alloy steel is produced containing 18 per cent chromium and 8 per cent nickel the resultant product offers a splendid combination of properties for a multitude of uses. This well known alloy, referred to as 18-8, has the widest application of any stainless alloy, and is produced in practically all commercial forms such as sheets, plates, bars and shapes, wire, strip and tubular goods.

Besides this popular 18-8 alloy, the series of straight chromium stainless steels containing chromium additions up to 30 per cent, with both low and high carbon contents, have a wide range of usefulness, and are by no means overshadowed by the chromium-nickel group.

One of the more recent contributions to the perfection of the line of 18-8 steels has been made by the

Research Laboratories of the United States Steel Corporation. A Stabilized 18-8 is now being offered to the trade, as the result of painstaking research and experimentation. It has been found that by adding a proper proportion of titanium to the austenitic chromium-nickel steel and then heat treating the material in accordance with a specific procedure, one of the former troubles sometimes encountered under the name of carbide precipitation is entirely eliminated. Stabilized 18-8 is particularly well suited for use in parts which are welded and subsequently exposed to highly corrosive media, or in equipment that is subjected to temperatures between 900 degrees and 1500 degrees Fahrenheit in service.

Another interesting development is the introduction of 18-8 bonded to low carbon steel plate. The cost of solid chromium-nickel steel in some cases has been a deterrent to its use in the construction of large stainless steel units where pressures and sizes necessitate heavy gauge plates. Now, with this bi-metal material, the cost of tank units with a stainless veneer can be justified economically. This patented product, referred to under the trade name "Plykrome", may be fabricated, spun, drawn, stamped and welded with the same technique and ease as ordinary steel. The permanence of the Plykrome bond is insured by the unique metallurgical and manufacturing conditions under which the material is produced.

Turning from the actual characteristics and developments of these steels to their uses, the advantages for marine application are already well recognized. They resist, to a marked degree, the action of sea water and salt solutions, and this

fact, coupled with the advantage of their high physical properties, makes them ideal metals for the construction of many parts of boats and ships. In the past it has been necessary to allow wide margins of safety in the design and use of material for such purposes, to insure against failure from corrosion, but with the advent of stainless steel, designers have been able to employ lighter sections, thereby effecting considerable and advantageous saving in weight.

Pleasure craft and commercial shipping interests are rapidly turning to the use of stainless steels in many parts of the ship. A few of the successful applications include radio and signal masts, stair and hand-rails, galley equipment, deck fittings, kick and floor plates, and miscellaneous furnishing. Stainless steel in sheet form made from 18-8 analysis is ideally suited for all galley trim, as this metal is resistant to attack by food stuffs, is easily cleaned, and is neat and attractive in appearance. Many of the new liners are using stainless sheets for stove and dresser top construction.

Stainless steels are suitable for studs and nuts used around engine rooms, reducing by many hours the time ordinarily required to free mechanical parts frozen by rust. It can be readily understood that 18-8 alloy steel in the form of wire rope has rapidly gained popularity among marine engineers for submerged anchor cables, clearing lines, and on yacht rigging.

Undoubtedly in the next few years many additional applications for stainless steel will be found in the marine industry, and although it must be realized that the stainless steels do not constitute a cure-

faces a layer of metal highly capable of resisting abrasion.

Hard-facing finds many applications in practically every industry. In excavating, dredging and quarrying, the life of such parts as dipper teeth, bucket lips, dredging cutters, and tractor treads, is increased from three to ten times by the application of hard-facing materials to their wearing surfaces. Where abrasion is intensified by heat, as in the iron and steel and coke and gas industries, hard-facing proves to be doubly valuable. The life and efficiency of water-cooled pokers, coke pusher shoes, hot shearing knives, hot forming and trimming dies, carbon scrapers, tap hole augers and mill guides are greatly increased by hard-facing.

In the mining industry, where abrasive action is particularly severe, one finds the hard-facing process applied to such parts as under-cutter bits, grizzlies, gyratory crusher mantles, crusher jaws, under-ground scrapers, etc. Both the cement and brick industries have profited considerably by the hard-facing process. Grinder rings, conveyor screws, gudgeons, augers, shovel and drag line teeth and lips, pug mill knives and brick dies are some of the more important applications. Agricultural implements of all types, including plow shares and disks, corn planter runners, subsoil teeth and grain pulverizer hammers have much longer life when hard-faced.

Besides the valve seats already mentioned, the automotive and aircraft industries find such other applications as valves, dies, cams, clutch pressure plates and fingers tappets, pump shafts, tail skids, and tire chains. Progressive mills in the lumber and paper industries have found the hard-facing of hog anvils, chipper bed plates, chipper chutes and clutch jaws to be particularly economical.

Applications in the power industry include gate and globe valves for high temperature and high pressure steam, gas and oil, needle valves and nozzles, pulverizer hammers, and boiler tube cleaners. Dies, cams, shear blades, welding rolls, collets and guides are typical applications in the manufacture of machinery. The beet sugar, glass and aluminum industries have also found many successful applications for hard-facing.

The wide acceptance of hard facing during the past few years is a direct result of the inherent econ-

omies of the process. Of primary importance is the longer life of hard-faced parts, which means fewer replacements, with resultant savings in labor charges and lost production. Hard-facing permits the utilization of cheaper base metals for wearing parts, and a further saving lies in the possible salvaging or reclaiming of worn parts. The efficiency of hard-faced parts is improved because these parts remain in better condition. The net result of these cost reducing features is a general increase in operating efficiency.

These and many other hard-facing applications are described in a 96-page booklet entitled "Hard-Facing with Haynes Stellite Products," recently issued by the Haynes Stellite Company. A detailed description is also given of various hard-facing materials and the correct procedure for their application by both the oxy-acetylene and electric arc processes. Other sections of this valuable booklet include a description of jigs and fixtures for facilitating the hard-facing operation, tables for estimating hard-facing costs, and a list of ferrous and non-ferrous metals and alloys showing what materials can or cannot be hard-faced. Copies of this booklet will be gladly furnished upon request to the Haynes Stellite Company or Pacific Marine Review.

Trade Literature

The following publications of the United States Bureau of Navigation and Steamboat Inspection have just been received. They may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., at the prices stated either in the form of post office money order, express money order, or cash.

Merchant Marine Statistics for 1933 is a reference book of authentic statistical information regarding the American Merchant Marine from 1789 to 1933. It summarizes and brings up to date current marine activities and accomplishments in the United States.

It contains statistics on American documented tonnage, American tonnage tax, American seamen, American water-borne commerce, world tonnage, and undocumented American tonnage. Paper bound, 118 pages, 6 x 9 inches. Price 10 cents.

Merchant Vessels of the United States for 1933 is a reference handbook and directory of information regarding the American Merchant Marine for the year. It contains the name of every documented merchant vessel and every yacht of the United States, approximately 28,000, the tonnages, dimensions, year and place of build, service and number of men composing the crew, together with the name and address of the owner. It also lists the new visual and radio call letters of each merchant vessel and yacht, together with those vessels owned by the Government Departments.

It shows separately the steam, motor, sail, and unrigged merchant vessels, and similarly, the yachts. Also, it shows the name of every documented merchant vessel and yacht which was lost, abandoned, sold to aliens, or removed for other causes during the year.

It contains a list of shipyards and names the vessels of 100 tons and over built therein since 1900, a list of oil-burning steamers, vessels measured under Panama and Suez Canal rules, vessels belonging to the Navy, War, Treasury, Agriculture, Commerce, Labor, and Interior Departments, the Panama Canal and Panama Railroad Co., and vessels owned in the Philippine Islands. The vessels are arranged in the alphabetical order of their names.

Cloth bound. 1,160 pages, 7x10 inches. Price \$2.75.

Seagoing Vessels of the United States for 1933 is a reference book designed especially for the use of signal stations and for masters of seagoing vessels.

It contains the name of every seagoing documented merchant vessel and yacht in the United States that has the new visual and radio call letters, its tonnage and dimensions, date and place of build, service, crew, horsepower, and the name and address of the owner. It shows separately those vessels that have the new visual and radio call letters and are owned by the Navy, War, Treasury, and Commerce Departments.

Its special features are distant signals of the international code, storm and hurricane warnings, and rules for maneuvering vessels in the presence of cyclonic storms.

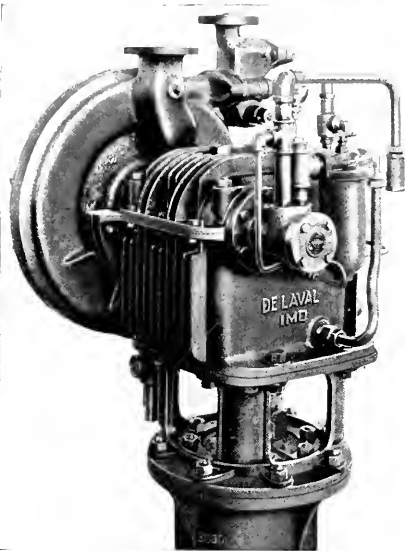
Paper bound. 150 pages, 7x10 inches. Price 20 cents.

Geared Turbine Drive for Rotary Fuel Oil Pumps

Rotary displacement pumps are preferred for handling oil, whether fuel oil or for lubricating oil, as they have no valves, operate without shock or pulsation, run at relatively high speed, and, in the type here shown, have only one shaft packing and no packings under high pressure. They are also exceptionally compact, which is a great advantage in such applications, particularly on shipboard.

The unit illustrated, consists of a De Laval-IMO pump set with the shaft vertical and driven through a worm reduction gear by a high speed steam turbine, the casing of which is mounted on the gear casing. While this type of pump is in some cases directly connected to electric motors or to steam turbines and is adapted to run at ordinary turbine speeds, the use of the speed reducing gear makes it possible to combine good steam economy with the simplicity and low cost of a velocity stage turbine with only one

Closeup of De Laval IMO pump set showing small IMO pump for circulating oil through filter to bearings and gears.



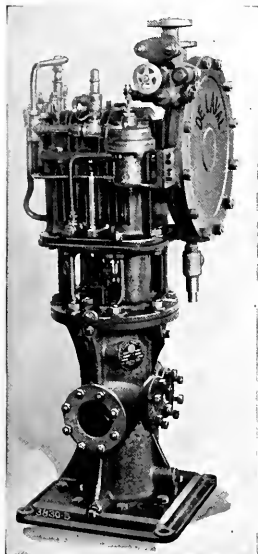
pressure stage, reducing the steam consumption to about half that of ordinary steam driven pumps. The speed of the turbine is controlled by a small hydraulic governor operating a throttle valve.

As the unit is designed for continuous operation, oil for lubrication of the worm and gear bearings and teeth is provided by a self-contained system, including a filter through which the oil is circulated by a small IMO pump driven directly from the worm shaft. The pressure differential maintained by this small pump on a fixed orifice also serves as the speed governing medium. The worm gear casing is also ribbed to dissipate heat, which greatly increases its continuous power rating. The unit will deliver oil to burners or to a lubrication system at any rate up to 500 gallons per minute.

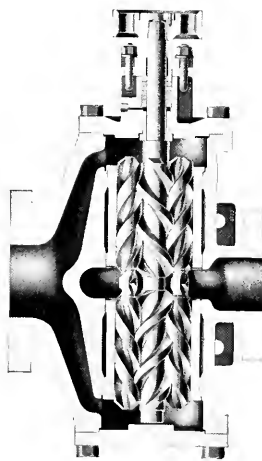
at the order of the Bureau of Yards and Docks, Navy Department, for use in the Puget Sound Navy Yard at Bremerton, Washington. This twenty-four page brochure giving details, amply supplemented by photographs and diagrams, may be secured free of charge by application to Pacific Marine Review, or to the Dravo Contracting Co.

TRADE LITERATURE

Dravo Contracting Co., Pittsburgh, Pa., are offering a beautifully colored and illustrated booklet entitled, "250 Gross Ton Revolving Crane," describing the building of the largest revolving crane of the roller circle turntable type. The crane, designed and built by the engineering works department of the Dravo Contracting Co., in 1932 and 1933, was constructed



De Laval geared steam turbine drive mounted on De Laval-IMO pump. Capacity to 500 gallons a minute.



Sectional view of De Laval-IMO pump.

ing the heavy cruiser **San Francisco**, (CA-38) for United States Navy, 10,000 tons displacement; L.B.P. 578'; extreme beam 61', 10"; normal loaded draft, 21', 7"; keel laid September 9, 1931, launched March 9, 1933, to be delivered February 9, 1934. **Smith**, U.S. torpedo boat destroyer (DD378); 340 ft. long, 35 knots speed; standard displacement, 1500 tons; estimated completion date, Feb., 1936. **Preston**, U. S. torpedo boat destroyer (DD379); 340 ft. long; 35 knots speed; standard displacement, 1500 tons; estimated completion date, May, 1936.

Atlantic, Lakes, Rivers

AMERICAN BRIDGE COMPANY
Pittsburgh, Pa.

NEW CONSTRUCTION: Repairs to 27 coal barges (175'x26'11") for Carnegie Steel Co.; 16 delivered.

THE AMERICAN SHIPBUILDING COMPANY

Cleveland, Ohio

Four bulk lake freighters converting to self-unloading vessels, completed and delivered.

BATH IRON WORKS

Bath, Maine

NEW CONSTRUCTION: Hull No. 154, **Dewey** (DD 349), torpedo boat destroyer for U.S. Navy; keel laid Dec. 16, 1932; estimated launching, May, 1934; estimated delivery, August, 1934. Hull No. 159, **Drayton** (DD 366), torpedo boat destroyer, U.S. Navy; keel laying and launching, no dates set; estimated delivery, November, 1935; Hull No. 160, **Lamson** (DD 367), torpedo boat destroyer, for U.S. Navy; keel laying and launching, no dates set; estimated delivery, January, 1936. Speed loaded for all three of the above, 36½ knots. Standard displacement 1500 tons, turbine engines.

BETHLEHEM SHIPBUILDING CORPORATION

Fore River Plant,
Quincy, Mass.

NEW CONSTRUCTION: For the U. S. Navy: **Torpedo Boat Destroyer Farragut** (No. 348), 340 ft. long, 35 knots speed. Estimated delivery February, 1934. **Heavy Cruiser CA-39, Quincy**, 10,000 tons. Estimated delivery January, 1936. **Heavy Cruiser CA44, Vincennes**, 10,000 tons. Estimated delivery January 1937. Keel laid January 2, 1934. **Four Torpedo Boat Destroyers:** DD360, **Phelps**, keel laid January 2,

1934; estimated delivery, December, 1935; DD361, **Clark**, keel laid January 2, 1934; estimated delivery February, 1936; DD362, **Moffett**, keel laid, January 2, 1934; estimated delivery April 1936; DD363, **Baleh**, keel laid, January 2, 1934; estimated delivery, June, 1936.

CHARLESTON DRYDOCK AND MACHINERY CO.

Charleston, S.C.

NEW CONSTRUCTION: **Yacht Ranger**, conversion to cargo boat; estimated completed December 14, 1933. **Contract** for building a 60,000-gallon gas, all-welded tanker; estimated delivery, February 15, 1934; owners not announced.

COLLINGWOOD SHIPYARDS, LTD.

Collingwood, Ontario

DRYDOCK, PAINT, MISCELLANEOUS: SS. **Geo. R. Donovan**, SS. **William Schupp**, SS. **Simcolite**.

DEFOE BOAT AND MOTOR WORKS

Bay City, Mich.

NEW CONSTRUCTION: U. S. Coast Guard Cutter No. 151, displacement tonnage 1000; keel laid, November 30, 1933; estimated launching, Sept. 1934; estimated delivery, Nov. 1934. U. S. Coast Guard Cutter No. 152, displacement tonnage 1000; geared turbine drive; B. & W. boilers; 1500 h.p.; keel laid Dec. 15, 1933; estimated launching, Oct., 1934; estimated delivery, Nov., 1934.

THE DRAVO CONTRACTING CO.

Engineering Works Dept.,

Pittsburgh, Pa., and Wilmington, Del.

NEW CONSTRUCTION: Contract No. 872, Hull No. 997, one diesel sternwheel towboat, **Stock**, of 91 gross tons; Contract No. 983, Hull No. 1151, one steel floating drydock, Bureau of Yards and Docks, Navy Department, of 4220 gross tons; contract No. W1004, Hull Nos. 1165, 1166, 1167, and 1168, four hopper type mdse. barges, size 132' x 35' x 11' for the Union Barge Line Corp., Pittsburgh, Pa., 2072 gross tons. Contract No. 1019, Hull No. 1169, 240 H.P. single screw diesel towboat; size 90'x21'x6'9"; 153 gross tons. This makes a total of seven hulls under contract, with a total gross tonnage of 6536.

ELECTRIC BOAT CO.

Groton, Conn.

NEW CONSTRUCTION: Hull

No. 17, **Cuttlefish**, fleet submarine, (SS171) for U.S. Navy, keel laid October 7, 1931; launched July, 1933; and estimated delivery, March, 1934; standard displacement, 1125 tons. Also two river boats of about 250 tons, 145 feet long, no names. Hull No. 19, fleet submarine, **Shark**, (SS174); L.B.P. 298'; beam, 25'; standard displacement, 1315 tons; keel laid, October 24, 1933; estimated launching, April, 1935. Hull No. 20, **Tarpon** (SS175): L.B.P., 298'; beam, 25'; standard displacement, 1315 tons; keel laid, Dec. 22, 1933; estimated launching, February, 1935; possible delivery, November, 1935.

DRY DOCK, PAINT, MISCELLANEOUS: **Yacht Mascotte**, yacht Utowana, trawler **Brant**, trawler **Coot**, ketch **Atlantis**, trawler **Loon**, trawler **Kingfisher**, yacht **Thelma**, U.S.S. Submarine R-3, U.S.S. Submarine R-10, U.S.S. Submarine R-4, trawler **Tern**, trawler **Plover**, trawler **Teal**.

THE FEDERAL SHIPBUILDING AND DRYDOCK COMPANY

Kearny, N.J.

NEW CONSTRUCTION: Two destroyers, DD368 **Flusser** and DD369 **Reid** for the U. S. Navy, estimated completion dates—**Flusser**, Nov., 1935; **Reid**, Feb., 1936; Hull 125, a barge for the Hygrade No. 2 Corporation, 174'x39'; 12' loaded draft of 700 d.w. tons; keel laid, October 5, 1933; launched, November 29, 1933; delivered December, 1933. Hull No. 126, **Seaboard No. 77**, keel laid, Aug. 21, 1933; launched Oct. 10, 1933; delivered Oct. 20, 1933; dimensions same as Hull 125. Hulls Nos. 127 and 128, **Destroyers**; Hull No. 129, barge for stock; keel laid, Dec. 12, 1933; L.B.P. 175; beam, 39; loaded draft, 12' 7"; 825 d.w. tons; Hull No. 130, barge, owner not announced, 825 d.w. tons.

GREAT LAKES ENGINEERING WORKS

River Rouge, Mich.

NEW CONSTRUCTION: Contract to lengthen the SS. **Maine** 105 feet, 9 inches, making the new length, 353 feet, 4 inches, between perpendiculars. This ship was shortened last year to get through the St. Lawrence River locks. Work to start about Feb. 1, 1934.

INGALLS IRON WORKS

Birmingham, Ala.

NEW CONSTRUCTION: Hull No. 72, river dredge; keel laid, Nov.

6, 1933; launching, no date set; L.B.P. 140 feet; beam, 49 feet. **Hulls Nos. 73 and 74**, river pontoons; keels laid Nov. 1933; estimated delivery, Dec. 20, 1933; L.B.P. 140'; beam, 8'. **Hulls Nos. 76 and 77**, 2 barges, A-76 and A-78; keels laid, Nov., 1933; estimated launching Jan. 1934; L.B.P., 105'; beam, 29.5'; loaded draft, 6.25'; d.w. tons, 450; **Hull No. 75**, Wharfbat; 230'x 55'x9'9"; keel laid Jan. 1934; estimated launching, March, 1934.

MANITOWOC SHIPBUILDING CO. Manitowoc, Wis.

NEW CONSTRUCTION: Three U.S. Coast Guard Patrol Boats, **Hull Nos. 277, 278, and 279** L.B.P. 165'; beam 25' 3"; loaded draft, 8' 6"; speed loaded, 18 knots; Diesel engines, 1300 S.H.P.; no names; no dates set; **Hull No. 280**, Lighthouse tender, Tamarack, L.B.P. 111' 8"; beam 29'; loaded draft, 7'; speed loaded 10 1/4 knots; Diesel electric, 450 S.H.P.

THE MARIETTA MANUFACTURING COMPANY Point Pleasant, W. Va.

NEW CONSTRUCTION: Two 32-inch channel dredges of the dustpan suction head type for U. S. Engineer's Office, Memphis, Tenn. 244' length, 52' molded beam, and 9' depth. These dredges have steel hulls, and keels were laid; **Jadwin** on July 5th, 1933, and **Burgess** on July 8th, 1933. They are self-propelled with triple expansion engines and steam turbine drive. **Jadwin** launched, Oct. 28, 1933; **Burgess**, launched November 25, 1933; estimated delivery, January, 1934.

Three 165' Patrol Boats for U. S. Coast Guard, Washington, D. C. These boats have a 25'3" beam, they are 132' deep and will draw approximately 7'. They will be of the twin-screw type, propelled by two 650 horsepower Winton Diesel engines. The total displacement of each vessel is approximately 300 tons and the required speed is 16 knots. Two 132'x35'x10' steel covered cargo barges of 80 tons capacity for stock account.

MIDLAND BARGE COMPANY (Subsidiary of Treadwell Construction Co.)

Midland and Erie, Pa.
NEW CONSTRUCTION: **Hull 243**, one 15-ton whirler derrick boat with 85 ft. boom for U.S. Engineers. **Hull 246**, ferryboat for Wheeling Steel Corp. **Hull 247** one barge for Parsons and Rader, completed.

Hulls 248 and 249, two steel Needle Flats for U.S. Engineer's Office, Cincinnati, Ohio. 48 pontoons, 48' x 18' x 2' 10" for U. S. Engineers, Memphis, Tenn. Two barges, 40'x 18'x3' for U. S. Engineer's Office, Chicago, Ill.

NASHVILLE BRIDGE CO. Nashville, Tenn.

NEW CONSTRUCTION: **Hull No. 285**, Dredge; keel to be laid February 5, 1934; estimated launching, March, 1934; L.B.P. 90'; beam, 22'; loaded draft, 5'.

NEWPORT NEWS SHIPBUILDING & DRYDOCK CO.

90 Broad Street, New York

NEW CONSTRUCTION: Contracts for H 359 aircraft carrier **CV5**, Yorktown, for U.S. Navy estimated delivery August, 1936 and **H360** aircraft carrier, **CV6**, Enterprise, for U.S. Navy, estimated delivery, December, 1936. Also **Ranger**, hull 353, aircraft carrier No. 4 for U.S. Navy, keel laid September 26, 1931, launched February 25, 1933, estimated delivery May 1, 1934. There is also under construction **Hull 357**, freight vessel for the A. H. Bull Steamship Company, 40 West Street, New York, 410' length, 55' beam, 30'6" depth, geared turbine, delivery estimated April 30, 1934. Also **Hull 358**, same as above, delivery estimated during May, 1934.

THE NEW YORK SHIPBUILDING COMPANY Camden, N.J.

NEW CONSTRUCTION: Contracts for four destroyers: **Hull No. 408**, Porter (DD356); **Hull No. 409**, Selfridge (DD357); **Hull No. 410**, McDougal (DD358); **Hull No. 411**, Winslow (DD359); of 1850 tons each. Also two light cruisers: **Hull No. 412**, Savannah (CL42), **Hull No. 413**, Nashville (CL43), of 10,000 tons each for the U.S. Navy Department; estimated delivery dates are as follows: **DD356**, Porter, Dec., 1935; **DD357**, Selfridge, Feb., 1936; **DD358**, McDougal, Apr., 1936; **DD359**, Winslow, June, 1936; **CL42**, Savannah, Aug., 1936; **CL43**, Nashville, Dec., 1936.

THE PUSEY & JONES CORP. Wilmington, Del.

NEW CONSTRUCTION: Delmarva, hull 1059, twin screw automobile and passenger ferry for Virginia Ferry Corporation; 250 L. B. P.; 59' beam; 10' loaded draft; 18 knots speed; 350 Skinner Unaflo

steam engine; 2800 I.H.P.; two watertube boilers; keel laid June 1, 1933; launched November 2, 1933, delivered January 5, 1934. Nos. 56, 57, and 58, cruising cutters, building for Treasury Dept., U.S. Coast Guard Service; L.B.P., 150'; beams, 36'; loaded draft 13'; speed loaded, 15 miles per hour; turbine engines, 1500 S.H.P.; two watertube boilers, 325 pounds pressure, construction schedule not yet made up.

SPEDDEN SHIPBUILDING CO. Baltimore, Md.

NEW CONSTRUCTION: **Hull No. 274** (Diesel), Electric, wrought iron hull, Boarding Cutter, for the U. S. Public Health Service, Staten Island, N. Y., estimated keel laying, February 15, 1934; estimated launching, July 15, 1934; estimated delivery, December 27, 1934; L.B.P. 100'8"; beam, 23'; loaded draft, 10'; speed loaded, 12 knots; two 360 B.H.P. Fairbanks Morse engines. Contract received Jan. 11, 1934.

SUN SHIPBUILDING & DRY DOCK CO. Chester, Pa.

NEW CONSTRUCTION: **Hull No. 150**, welded Diesel electric barge for Atlantic Refining Co., L.B.P. 190'; beam, 34'; estimated delivery, May 15, 1934.

DRY DOCK, PAINT, MISCELLANEOUS: **MS. Passaic** Sun, **MS. Raritan** Sun, **MS. Mercury** Sun, **MS. Southern** Sun, **SS. W. W. Mills**, **SS. David McKelvy**, **SS. Pacific Cedar**; ferryboat Bridgeport; U.S. Dredge **Rossell**; U.S. Dredge **Marshall**.

TODD SHIPYARDS CORP.
25 Broadway, New York City
(Robins Dry Dock and Repair Company, Brooklyn, N.Y.)

CONTRACTS FOR REPAIR: U.S. Army transport **Republic**, at a price of approximately \$14,280.40. Collision damage to **SS. Munargo** of the Munson Steamship Lines, N.Y. Price involved, \$72,000, delivery to be made in 45 days.

UNITED DRYDOCKS, Inc. Staten Island, N.Y.

NEW CONSTRUCTION: **DD364**, destroyer **Mahan**, estimated delivery, Oct. 1935, and **DD 365**, destroyer **Cummings**, estimated delivery, Dec., 1935, for U. S. Navy. **Hull 817**, Barge **Blue Line 101**, launched Oct. 18, 1933; delivered, Oct. 21, 1933. **Hull No. 818** Barge **Blue Line 102** for J. McWilliams Blue Line; keels laid August, 1933; launched December 21, 1933; delivered De-

cember 23, 1933. Hull No. 821, *Studerus*, Barge, for Studerus Oil Co.; L.B.P. 100', beam 30', depth 8', keel laid Nov. 10, 1933; launched December 27, 1933; estimated delivery, Jan. 6, 1934.

UNITED STATES NAVY YARD Boston, Mass.

NEW CONSTRUCTION: Destroyer DD 370, *Case*, L.B.P. 334 ft., beam 35 ft.; estimated delivery, Feb., 1936; destroyer DD 371, *Conyngham*, L.B.P. 334 ft., beam 35 ft., estimated delivery, May, 1936; destroyer DD 354, *Monaghan*, L.B.P. 334 ft., beam 34 ft. 2 in., keel laid, November 21, 1933; estimated delivery, Jan., 1935; destroyer DD-351, *McDonough*, keel laid May, 1933, L.B.P. 334 ft., beam 34 ft. 2 in., estimated delivery, Dec., 1934; for the U.S. Navy.

UNITED STATES NAVY YARD Charleston, S.C.

NEW CONSTRUCTION: U.S.S. *Charleston*, gunboat (PG 51) for U.S. Navy, building period assigned by Navy Department, Nov. 1, 1933, to Feb. 1, 1936. Work not yet started.

UNITED STATES NAVY YARD New York, N. Y.

NEW CONSTRUCTION: Hull No. 32, *New Orleans*, heavy cruiser; keel laid, March 14, 1931; launched, April 12, 1933; no delivery date set; L.B.P. 578'; beam 61'9"; standard displacement, 10,000 tons; geared turbine engines; express type boilers. Hull No. 350, *Hull*, destroyer; keel laid, March, 1933; no further dates set; L.B.P. 334'; beam, 34'2"; standard displacement, 1500 tons; geared turbine engines; express type boilers. Hull No. 353, *Dale*, destroyer, dimensions same as above, no dates set. Hull No. 41, *Brooklyn*, light cruiser, no dates set; L.B.P. 600'; beam 61'8"; standard displacement, 10,000; geared turbine engines; express type boilers. Hull No. 50, *Erie*, gunboat, no dates set; L.B.P., 308'; beam, 41'; standard displacement, 2000 tons; geared turbine engines; express type boilers. Building for U.S. Navy.

SHIPBUILDING IN THE UNITED STATES AND ABROAD—1933

(Continued from Page 54)

for allied industry labor will be about three times as great as the amount expended for shipyard labor.

During the second half of the year 1933 activity in ship-repairing

UNITED STATES NAVY YARD Philadelphia, Pa.

NEW CONSTRUCTION: Philadelphia (CL41), light cruiser, 10,000 tons, length overall 588'; breadth 61'9" extreme; depth 34' at side; estimated completion, Nov., 1936. Minneapolis (CA36), heavy cruiser, 10,000 tons, length overall 607'6"; breadth 59'6" molded; depth 35'8"; tentative delivery date Aug. ust, 1936; Aylwin (DD355), destroyer, 1,500 tons; Cassin (DD372), destroyer, 1,500 tons; Shaw (DD373) destroyer 1,500 tons for last three above; length overall 341'3", breadth 34'11 1/2" extreme; depth 23'2" at side; tentative delivery dates January, 1935, February, 1936, May, 1936, respectively.

UNITED STATES NAVY YARD Portsmouth, N. H.

NEW CONSTRUCTION: Three submarines: SS 170, *Cachalot*, keel laid, Oct. 21, 1931; launched, Oct. 19, 1933; commissioned Dec. 1, 1933; estimated delivery, Feb., 1934. SS 172, *Porpoise*; keel laid, Oct. 27, 1933; estimated delivery, Feb. 1936. SS 173, *Pike*, keel laid, Dec. 20, 1933 estimated delivery, May, 1936; Coast Guard Harbor Cutter 62; estimated delivery, Nov. 1934.

UNITED STATES NAVY YARD Portsmouth, Va.

NEW CONSTRUCTION: Torpedo Boat Destroyer *Tucker* (DD374) for U.S. Navy, 344 ft. long; beam 35'; loaded draft, 10'10"; treaty standard displacement, 1500 tons; No. 4 boilers; 35 knots speed; estimated delivery, February, 1936; Torpedo Boat Destroyer *Downes* (DD375) for U.S. Navy, 344 ft. long; beam 35'; loaded draft, 10'10"; treaty standard displacement, 1500 tons; No. 4 boilers; 35 knots speed; estimated delivery, May, 1936. Laying down lines started in mold loft.

MODERNIZATION: Battleship BB42, *Idaho*; estimated completion, Sept., 1934.

DRYDOCK, PAINT, MISCELLANEOUS: U.S.S. *Idaho* (BB42), U.S.S. *Mississippi* (BB41), U.S.S. *Sequoia* (AC23), U.S.S. *Overton* (DD239), U.S.S. *Sturtevant* (DD-240), U.S.C.G.C. *Mendota*.

United States Lines was delivered during the year and is now operating with success.

World Shipbuilding

There is a note of encouragement to world shipbuilding in the fact that idle tonnage throughout the world declined from 14,115,000 gross tons on July 1, 1932 to 11,473,000 gross tons on July 1, 1933.

It is also encouraging to shipbuilders to note that during the fiscal year ended July 1, 1933 there has been a reduction of over 3,300,000 gross tons of world shipping due to scrapping or other causes.

Merchant shipbuilding throughout the world was seriously depressed during 1933 according to Lloyd's.

While due to our higher wage scale the cost of steel ships in the United States has always been greater than abroad, this differential has recently been subject to great fluctuation due to the relative value of the American dollar and foreign money.

In Japan, the naval estimates for the fiscal year beginning April next total thirty percent more than the estimates of 1921-22, the largest previous estimates for Japanese sea forces.

In the United States the government will spend about \$265,000,000 during the next three years for thirty-seven naval vessels, of which \$238,000,000 represents the 1933 program and the balance will cover five vessels which were previously authorized. The total program includes:

- 5 Cruisers
- 2 Aircraft carriers
- 4 Submarines
- 24 Destroyers
- 2 Gunboats

Similar activity within the limits of naval treaties is taking place in France and Italy.

In France the construction of the Superliner "Normandie" has continued slowly. It is not anticipated, however, that this vessel will go into commission before 1935. This is the first vessel to exceed 1000 feet in length overall.

In Great Britain, the "Arcwear", the first of three cargo vessels designed with the arc-form of midship section was launched. The performance of this vessel, with claims for a high efficiency of operation, will be watched with considerable interest.



Marine Insurance

Fire Control for Passenger Vessels

III. Recommended Fire-Resistant Construction

By George G. Sharp, Naval Architect

As a result of the work of The Conference Committee on Construction of the Marine Committee of the National Fire Protection Association the Recommended Regulations Covering Fire-Resisting Construction Aboard Vessels (Ocean and Coastwise) were adopted as a tentative standard at the annual meeting of the Association, May 29 to June 1, 1933, at Milwaukee, Wis., and are appended to this paper.

Since much of the subject matter of this paper covers views based on personal experience and may not be in accordance with the views of the members of the Conference Committee, no attempt has been made to connect up the paper with the Regulations.

In connection with the presentation of the Regulations as an appendix to the paper, the opportunity is herewith taken to thank the Conference Committee for their cooperation and assistance in the drawing up of the Regulations, and to Mr. Hugo Frear for his investigation and suggestions on ventilation as far as they have been incorporated in the Regulations.

RECOMMENDED REGULATIONS GOVERNING FIRE-RESISTING CONSTRUCTION ABOARD VESSELS

(Ocean and Coastwise Service)

Conference Committee

George G. Sharp, Naval Architect, Chairman.

David Arnott, Chief Surveyor, American Bureau of Shipping

Captain George S. Bull, Chief Surveyor, U. S. Salvage Association.

Hugo P. Frear, Naval Architect.

James French, Chief Surveyor, Lloyds Register of Shipping.

Edward R. Hardy, Secretary, The Insurance Institute.

Robert W. Maust, Architect.

J. F. McMillan, Chairman, Technical Committee, American Steamship Owners' Association.

H. E. Newell, Engineer, National Board of Fire Underwriters.

J. A. Pennypacker, National Council of American Shipbuilders.

These Regulations assume that the vessel is built and equipped in accordance with the latest requirements of

the American Bureau of Shipping, the U. S. Steamboat Inspection Service, the International Convention for the Safety of Life at Sea, and that all decks are of steel.

Intent

The intent of these Regulations is, in the hull and superstructure, to provide:

(1) By Class "A-1" Bulkheads (coinciding, as far as practicable, with the main hull subdivision watertight bulkheads) transverse subdivision of the accommodation not greater in length than 131 feet, in accordance with the provisions of the International Convention for the Safety of Life at Sea.

(2) By Class "A" Bulkheads, additional subdivision around vertical communication between decks*, also around vertical trunks, elevators, galleys, lamp and paint stores, mail, baggage, and specie rooms.

(3) By Class "B" Bulkheads, the boundaries of all enclosures within the above main subdivisions.

(4) Escape Stairways between all Class "A-1" Bulkheads.

(5) Class "A-1" (normally open), Class "A" and Class "B" Doors in their respective Class Bulkheads.

(6) Class "A" Draft Doors (normally closed) as follows:

(a) In all corridors each side of each Class "A-1" Bulkhead Door, at a convenient distance, preferably not more than 10 feet from the "A-1" Door.

(b) In all corridors between Class "A-1" Bulkheads to suit arrangements but in no case exceeding 60 feet apart.

(c) In all stairway enclosures, for access, at all decks.

Bulkheads and Linings—Classification

Class "A-1". Structural steel bulkheads insulated and lined with fire-resisting material and capable of withstanding 1500 degrees F. for 60 minutes.

Where Class "A-1" Bulkheads are stepped or recessed at decks the underside of deck and around beams is to be insulated for the extent of such step or recess.

Class "A". Structural steel bulkheads lined with fire-resisting material and capable of withstanding 1500 degrees F. for 30 minutes.

Structural steel bulkheads, unlined, where there is no adjacent flammable material on one side, and they are capable of withstanding 1500 degrees F. for 30 minutes.

Watertight Bulkheads below the bulkhead deck are to be considered as Class "A" Bulkheads except where they separate cargo holds from accommodation or where they form extension of Class "A-1" Bulkheads below bulkhead deck, in both of which cases they are to be dealt with as Class "A-1" Bulkheads.

All deckhouse boundaries, including radio and pilot

*In vessels having spacious foyers containing shops, bureaux, etc., and/or where such spaces are open through one or more decks, "Class A-1" Bulkheads should be used for transverse subdivision each end of same, through all decks.

house, are to be considered as "Class "A" Bulkheads.

Class "B". Fire-resisting material capable of withstanding 1000 degrees F. for 30 minutes.

Hollow sheet metal or aluminum panels.

Sheet metal, hard sheet asbestos or laminated sheet Phenolic composition glued on untreated plywood or composition cores.

Untreated veneers on untreated plywood or composition cores having crossbands of not less than 1/32 inch sheet asbestos.

Fireproofed plywood, lumber or composition cores (treated) with untreated face veneers.

Single sheet steel, corrugated or stiffened, where there is no inflammable material adjacent to same on one side.

Class "C". Untreated wood, plywood or composition, coated on all surfaces with approved fire-resisting paint.

Bulkheads and Linings—Construction

Class "A-1" Bulkheads. Are to extend from deck to deck and are to be constructed of structural steel not less than 1/2 inch in thickness suitably stiffened. Linings in these bulkheads are to be Class "B" Material, secured to metal or Class "B" Furring. Space between to be filled with insulating material.

Class "A" Bulkheads. Are to extend from deck to deck and are to be of structural steel, to suit the conditions, and are to be lined at least on one side with Class "B" Materials secured to Class "B" Furring, or, where conditions are such that there is no inflammable material in contact with same on one side of the bulkhead, such linings may be omitted.

Class "B" Bulkheads. Transverse Class "B" Bulkheads as far as practicable should be spaced so as to fall on beams. Where this is not practicable they are to extend from deck to deck and to shell. The fore and aft passageway bulkheads are to extend from deck to deck.

Details of Construction. Sills and runners are to be of metal or Class "B" Material. In the event that the upper runner of the fore and aft bulkheads is run on the under side of the beams the space between the beams above same is to be filled in with sheet metal or any other Class "B" Material.

Connecting Members for bulkhead panels are to be of metal or Class "B" fire-resisting wood.

Door and Window Frames are to be of metal in Class "A" Bulkheads and of metal or Class "B" fire-resisting wood in Class "B" Bulkheads.

Trim—Baseboard frieze and cornice moldings may be of Class "C" Material but in no case are vertical face members to be of other than metal or Class "B" Material.

Any heavy ornate face trim is to be of Class "B" Material.

Ceilings—Panelling, beam boxing, trim and furring, in large public rooms where area exceeds 7500 square feet, and in all foyers, stairways, and corridors, to the Class "B" Material.

Class "C" Material may be used elsewhere.

In no case is beam boxing to be carried through a bulkhead.

Lining at Ship's Side is to be of Class "B" Material. It is to extend from deck to deck except where Class

"B" ceilings are fitted. Furring may be of Class "C" Material.

Stairways — Stringers, treads and risers to be of metal. Balustrade and trim to be of metal or Class "B" Material. Enclosures to be ample, and doors kept well clear of passing traffic.

Elevators to be located apart from stairways. Trunk, cage, and doors to be solid Class "A".

Insulation still to be dealt with.

Doors

Class "A-1" may be constructed of:

(1) No. 18 gage metal shell, filled with fire-resisting non-conducting material.

(2) Metal, faced with fire-resisting, non-conducting material on both sides.

(3) Any other material which is equally effective.

Door may be "hinged" or "sliding", and may be controlled remotely, if desired, but all are to be capable of being completely closed or opened, at the door, from both sides, by one man.

There is to be no more than one lever to actuate all fastening devices.

Class "A" may be constructed of:

(1) Hollow metal.

(2) Metal framed, fire-resisting glass.

(3) Any other material which is equally effective.

Draft Doors are not to have any positive fastening device when closed, and are to have fusible link in hold-back device. Those in corridors to have double-swing hinges. Those in Stairway Enclosures are to hinge open in direction of escape and may be double-swing, if conditions permit.

Other doors, which are not escape doors, may be hinged, sliding or rolling.

Class "B" may be hinged, sliding or rolling, and may be constructed of:

(1) Hollow metal.

(2) Metal frame fire-resisting glass.

(3) Other materials equivalent to Class "B" bulkheads.

No restrictions with regard to fastenings.

Windows

In Class "A" Bulkheads, metal-framed, fire-resisting glass. Those in bulkheads around stairways are to be "fixed", others may be "opening".

In Class "B" Bulkheads, metal-framed, fire-resisting glass. All may be "opening" type.

Decks and Deck Coverings

Steel Decks may be unsheathed:

In and over cargo holds.

Over boiler rooms where there is no inflammable material or cargo on upper side of deck provided the conditions set forth under "Ventilation" are complied with.

Deck under radio room to be insulated to form Class "A-1" fire-resisting defense.

Deck Covering of approved types is to be laid on decks over all accommodation except where there is no inflammable material or accommodation on upper side.

Untreated Wood is not to be used for deck covering on decks except calked decks on open or partially enclosed decks outside Class "A" Bulkheads which form the boundaries of accommodation, etc.

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The following deck coverings are considered satisfactory:

Magnesite—Polished or as sub-base for other covering.

Rubber Tiling or Linoleum laid on steel deck or approved sub-base.

Mastic Tiles laid on steel deck or approved sub-base.

Cork Tiles laid on steel deck or approved sub-base.

Parquetry or Hardwood floor laid on approved sub-base.

Cement, Cement and Tile and other approved deck coverings.

Painting

Class "B" Material having face veneers which are not fire-resisting are not to be coated with Pyroxylin base finishes.

Class "C" Material, wherever permitted, is to be coated with an approved fire-resisting paint, and is not to have Pyroxylin base finish over same.

Furniture and Furnishing

Galleys, Pantries and Storerooms. All dressers, tables, lockers, shelving, etc., in these spaces are to be of metal.

When it is considered necessary to have any wooden structure within these spaces it is to be sheathed with Sheet Metal or Class "B" Material.

Staterooms (Passengers and Crew). The use of inflammable materials in the furnishing of these spaces should be reduced as far as practicable except for portable furniture.

Wardrobes are to be constructed entirely of Class "B" Materials.

Beds preferably should be of metal.

Waste Paper Baskets are to be of solid metal or approved fire-resisting material and have curved-in tops. Are to be supplied in every room.

Ash Trays are to be of the "Non-Fume" or "Neva-Smoke" types and at least one is to be supplied to each room.

Ventilation System

Mechanical Ventilation. Blowers are to be located where possible so that the ducts leading to the various enclosures can be arranged to be kept within the main sub-divisions between "A-1" and "A" Class Bulkheads.

Arrangements are to be made so that inlet and outlet of blowers may be quickly covered in case of fire.

Where vents or ducts pass through "A" Bulkheads,

automatic draft checks or dampers are to be fitted.

Vent ducts should be kept clear of ceilings and they are not to have any contact with Class "C" Materials without insulation.

Automatic Blower Control—All blowers supplying air to all spaces should be provided with a master control which will permit them to be automatically shut down when a fire alarm indication is given by the automatic fire-detecting system. Manual operation of these master controls is to be provided at two separate points, located as far as possible from each other.

Provision is also to be made for putting into operation by manual means any unit of the ventilation system not supplying or exhausting the fire zone.

Natural Ventilation. All natural supply or exhaust vents, serving holds or storerooms, which are normally closed during the voyage, are to have manually operated dampers in the vent coaming or other accessible position above the weather deck.

Automatic Draft Checks or Dampers controlled by fusible link attached where practicable to hinged or bolted plate cover, so that it may be quickly inspected and, if necessary, renewed, are to be fitted:

(1) At the outlet in each compartment, in vents serving more than one compartment (so-called telescopic type vents).

(2) At the outlet in vents serving a cargo space and which pass through accommodation.

(3) At the outlet in each space served, in vents serving galleys, pantries, and all storerooms.

Ventilation to be further considered.

Electrical System

The requirements of Rules of the American Bureau of Shipping are to govern in combination with the following provisions:

(1) **Braided Cable**—To be used from portable lighting fixtures to receptacles only.

(2) **Circuits** to lighting fixtures are not to be run across class "C" Ceiling but may be run across steel beams above ceilings in such a manner as to avoid contact with any Class "C" Material.

(3) **Switches** in Panelboards and Switchboard Distribution Panels for Lighting and Power Circuits should be of the tamper-proof reset fuseless type with automatic thermal relay for overload and short circuit protection.

Balfour, Kessler Agencies Inc.

Marine Insurance Department

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Marine Insurance Notes

North American Warranty. The Institute of London Underwriters announces that the "North American Warranty" will be amended as from January 1st, 1934, to read:—

"Warranted not to proceed to or from:—

(a) Any port or place on the Atlantic Coast of North America, its rivers or adjacent islands north of 43 deg. 40 min. for bunkering purposes only the ports of Louisburg and Sydney.

(b) Greenland waters.

(c) Any port or place on the Pacific Coast of North America, its rivers or adjacent islands north of 50 deg. N. Lat., except ports or places on Vancouver Island and Prince Rupert via Dixon Strait."

The principal alteration compared with the old warranty is that the new text commences "Warranted not to proceed . . ." warranty at the moment of sailing, whereas, under the old warranty, breach occurred

on "entering or sailing from" the warranty tarred area. The inclusion of "Greenland waters" in the warranty, which is new, is not important, since trade to Greenland is a monopoly preserved to Danish vessels.

Georges Philippar Case. According to an item appearing in "The Engineer", London, January 12, the investigation of the loss of the French Liner Georges Philippar (burned at sea, May 2, 1932, with great loss of life) is now issuing in

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criminal proceedings against the shipowner and the shipbuilder involved.

It will be remembered that the underwriters paid the loss on this vessel; that the French Minister of Marine appointed a technical commission to investigate; that although this commission completed its inquiry and report early last summer, the ministry refused to publish the report but turned it over to a judicial committee, and that in July last year the London underwriters involved in the loss made formal demand for a refund of all sums paid.

The judicial commission has now initiated proceedings against several high officials of the Messageries Maritimes, Cie. Des., owners of the ship and of her builders, on charges of manslaughter based on "imprudence, negligence, lack of skill, and failure to observe regulations."

Thirty-eight Years of Service.—On December 28 last, a notable luncheon of honor and farewell was given to Harwood D. Swales by the Fireman's Fund Insurance Company on the occasion of his retirement from the Marine Department of the head office of that firm after 38 years of active service.

In addition to the guest of honor, company officials and members of the head office marine staff who attended the luncheon were:

J. B. Levison, President; Edward T. Cairns, Vice President; George Jordan, Marine Secretary; Leslie J.

Haefer, Assistant Marine Secretary; Thomas F. Ryan, Assistant Secretary; Miles York, Charles Luckhardt, C. N. Hydes, W. H. Menzies, Arnold Bowhay, James J. Walsh, Albert W. Cupid, Walter Hoffmann, A. H. Much, George E. McFarland and A. W. Young. It is interesting to note that the length of service of those in attendance averaged twenty-five years.

A host of friends, who have had the privilege of knowing Mr. Swales during his business career of two generations, wish him continued health and contentment, as he

leaves San Francisco's insurance district, where he is known so well.

Bridge Insurance.—The San Francisco-Oakland Bay Bridge is insured for a total of \$33,000,000 for a term of three years at \$1.25 or a total premium of \$412,500. The actual liability during construction is limited to the actual replacement value, and to earthquake risk only, the contractors assuming all other risks. Sixty-four direct lines of insurance are involved in the total.

Joint Hull Committee.—Mr. Ernest L. Jacobs for many years the efficient chairman of the Joint Hull committee of Lloyds' Underwriters and the Institute of London Underwriters, has retired from this post to the great regret of his fellow committee members.

Freights, Charters, Sales

January 18, 1934.

There has been little change in the Pacific Coast freight market. The holiday inactivity has continued in most trades, and still prevails in the European berth demand.

The salt movement referred to in our last advices has ceased for the present, though there are rumors of further orders in the near future. Tramp tonnage is scarce for nearby loading, but not enough so to affect rates.

Grain: Ropner steamer, British Columbia to Antwerp/Rotterdam, 20/6; Norwegian motorship Minerva, Portland/Shanghai, 11/-; British steamer Newton Elm, Vancouver to Shanghai; American steamer New York, Portland to Shanghai, \$4.25; British steamer Janeta, British Columbia, Liverpool; British steamer Trebartha, Portland to U.K./Cont.; American steamer Timber Rush, Portland to U.S. Gulf port.

Miscellaneous: British steamer Cumberleigh, 6 ports British Columbia to Plymouth and London, 20/6, f.i.o.; British stmr. Newton Ash, North Pacific to U.K., 20/6, f.i.o.; British motorship Uffington Court, Vancouver to Liverpool/Birkenhead, 20/9, f.i.o.; British steamer —, British Columbia to Leith and Grangemouth, p.t.; Dutch steamer Almelo, British Columbia to London, p.t.; Dutch steamer Amster-

dam, British Columbia to Hull and Immingham, p.t.; British steamer Coolistan, British Columbia to Avonmouth, p.t.; Finnish steamer Wasaborg, British Columbia to Garston and Sharpness, p.t.; British steamer Hartlepool, North Pacific to China, \$4400, lump sum; British steamer Barrywin, Dutch steamer Amstelland, British steamer Waziristan, British motorship Alington Court, Dallington Court, British steamers Sunnington Court and Rassington Court, British Columbia to U.K./Cont., lump sum p.t.

Time Charter: Danish motorship Indien, one trip, delivery North Pacific, redelivery China/Japan, 5/4½; a British steamer, 1 trip, delivery North Pacific, redelivery Australia, 4/-; Danish motorship Lundby, delivery British Columbia, redelivery Port Pirie, one trip, p.t.; Danish motorship Tacoma, 1 trip, delivery North Pacific, redelivery South Africa; Swedish motorship Erik Frisell, one trip, delivery British Columbia, redelivery Egypt; Danish motorship Astoria, 1 trip, delivery North Pacific, redelivery Japan.

Sales: American steamer Cacique, sold by W. R. Grace & Co. to Japanese buyers for breaking up, \$25,000, delivery Puget Sound. American steamer Edna sold by Sudden & Christenson to L. Ruben for scrapping.

PAGE BROTHERS.

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Trade Notes

World Shipbuilding. — Lloyd's quarterly returns for the last quarter of 1933 show the United States as just nosing out Norway for ninth place among the world's merchant shipbuilding nations. In merchant vessels of 100 gross tons and upwards there were under construction in the world's shipyards as of January 1, 1934, a total of 206 ships with an aggregate gross measurement of 757,277 tons. Great Britain and Ireland lead with 87 ships of 331,221 tons. Japan comes next with 20 ships of 106,760 tons. Sweden fourth with 14 ships of 64,640 tons. Holland with 12 vessels of 40,540 tons gets fifth place with Spain as number six, having 16 ships of 35,724 tons. Little Denmark is number seven with six ships of 24,663 tons. Italy takes eighth place, two ships of 11,200 tons. United States is number nine with three ships of 10,103 tons and Norway tenth with five ships of 8,050 tons. This is certainly not a very good showing for the richest and most powerful nation on earth, and the world's greatest producer of international commerce.

Marine Electrical Improvements

An improved line of pressure governors, designated as Type CR2922, has been developed by the General Electric Company. Although these governors are especially adapted for pumping station service, they can readily be used in industrial processes where it is desired to maintain a predetermined pressure. The scale of these new governors can be furnished to read water heads in feet instead of the usual pounds per square inch.

Adjustments can be made on the governors between the limits of 20 to 80 percent of the full scale rating. The maximum differential is 60 per cent and the minimum is 2 per cent of the full scale rating. Accuracy at the setting is 1 per cent of the full scale.

Design work has been continued actively throughout the past year by the General Electric Company in an effort to improve the efficiency of propelling equipment and to reduce the weight and space required for their operation. Of special interest was the advancement made in the application of high

pressure steam and practical designs evolved calling for temperatures of 850 degrees Fahrenheit and pressures up to 650 pounds per square inch.

Considerable progress has also been made in the design of propelling machinery utilizing the mercury-vapor process. In auxiliary equipment, the most outstanding development was the completion of designs for the use of alternating current motors to meet practically every Navy shipboard requirement.

Toward the close of the year, work was actively under way on double-reduction propulsion-gear turbine equipment for six new twin-screw destroyers. This construction comprises twelve equipments and 36 turbine casings, each turbine equipment consisting of high-pressure, low-pressure, and cruising units. Each ship will have two equipments—one for each of its propellers—providing approximately 43,000 shaft horsepower per ship.

Radio Stock Widely Held: Shareholders of the Radio Corporation of America, of which Radio Marine Corporation of America is a subsidiary, numbered 287,813 on December 30, 1933. The number represents a gain of 180,731 shareholders for the Corporation since December 30, 1932, and indicates that most shareholders who received stock through the distribution made by the General Electric Company and the Westinghouse Electric & Manufacturing Company on February 20, 1933, have retained that stock in their possession. The number of shareholders after this distribution was approximately 294,000.

As a result of this recent increase in number of shareholders, the Radio Corporation of America is now one of the most widely owned corporations in the country.

Port Notes

Summit, (Canal Zone). Public Works Administration has allotted \$600,000 to the Bureau of Yards and Docks, Navy Department, for the construction of radio communication facilities. Work includes erection of radio towers and general fa-

cilities building. Work is expected to start shortly.

Hueneme (California). Hueneme Dock Corp., Richard Bard, pres., has been allotted \$1,600,000 by the Federal Public Works Administration for the construction of harbor and terminal facilities. Col. Wm. T. Leeds, 605 W. 10th St., Los Angeles is consulting engineer.

Sacramento (California). Sacramento Junior Chamber of Commerce will ask Federal aid for development of a yacht harbor on the Sacramento River to cost \$200,000.

City of Oakland (California) Port Commission plans the construction of a 1300 ft. extension to dock on outer harbor. Application has been filed for \$510,000 of P.W.A. funds.

Seattle, Washington. Puget Sound Bridge & Dredging Co., 2929 16th S.W., at \$73,333 submitted low bid to the U. S. Engineers Office, Federal Bldg., for removing approx. 555,000 cu. yds. of material from the Willapa river.

Pearl Harbor, Hawaii. Public Works Administration has allotted \$800,000 to the Bureau of Yards and Docks, Navy Department, for the construction of radio communication facilities. Work includes erection of radio towers, new general facilities building, barracks, and mess halls. Plans have been completed and work will start at an early date.

Bureau of Yards and Docks, Washington, D. C., will call bids shortly for the erection of a boiler plant to be installed at Navy Yard. Spec. 7438. A deposit of \$10 will be required for plans.

Hawaiian Dredging Co., Honolulu, at \$2,800,000 awarded contract by the Bureau of Yards and Docks, Navy Department, for dredging 2,900,000 cu. yds. Spec. 7337.

Industrial Piping and Eng. Co., Baltimore, Md., at \$153,900 awarded contract by the Bureau of Yards and Docks, Navy Dept., Wash. D.C., for improvement of fuel oil system at Pearl Harbor. Spec. 7136.

The Th. Goldschmidt Corporation announces that contra rudders have been specified for the 12 tankers recently ordered from European shipyards by the Anglo Saxon Petroleum Company. This equipment was specified as the result of very satisfactory experience with these rudders on two of their motor tankers resulting in an average increase of sea speed of 0.41 knots.

Pacific Marine Personals

"NAMES ARE NEWS"



BY BERNARD De ROCHIE

GRACE OFFICIALS HONORED

Close to one hundred leaders in California maritime affairs were the guests of Joseph A. Moore, president of the Moore Dry Dock Company, in tribute to his good friends Fred Doelker and C. C. Mallory.

The banquet took place at the Pacific Union Club, where the genial host had arranged for countless surprises to delight his guests.

As our readers know, C. C. Mallory has been appointed to Grace Line executive duties in New York and Fred Doelker has been named to the San Francisco position of Pacific Coast manager.

Entertainment features included familiar "maritimers" like Charles Bulotti, Austin Sperry, Mackenzie Gordon, and Roy Folger. Speeches were made by Leland Cutler, Ralph Myers, John C. Rohlf, and, of course, by Toastmaster Moore.

The Pacific Foreign Steamship Association has elected the following officers: **Drew Chidester** of General Steamship Corporation, president; **Harold H. Ebey**, first vice-president; **Reginald Back**, second vice-president. The association has been formed to cooperate with American lines.

Dollar personnel changes as announced by R. Stanley Dollar, president of the Dollar Steamship lines:

George J. McCarthy is appointed Oriental passenger traffic manager.

Don Tinling is appointed Oriental freight traffic manager, with W. T. Goodwin as assistant.

W. H. Hoskier left during the month for an overland trip to I.M.M. headquarters in New York.

The well-known Pacific Coast manager of the Roosevelt-International Mercantile Marine lines will attend the Cannery Convention while in Chicago and will confer in New York with executive heads of his organization.

COAST VISITOR

Interviewed in Los Angeles, upon his arrival from New York on the Grace Express Liner, Santa Rosa, **Henry G. Lapham**, pioneer executive of the Texas Company and the American-Hawaiian Steamship Company, stated:

"I think the American Merchant Marine faces its best days. The swift recovery of the intercoastal trade, freed of the dangers of unstable competition by new laws, makes the picture considerably brighter."

Mr. Lapham expressed his enthusiasm over the new petroleum code. "The greatest thing that ever happened to the industry, both in production and marketing."



"Goodbye Broadway—Hello Embarcadero!"
R. H. Stidfole (center) leaves for San Francisco.

DOLLAR BOARD SHIP CHANGES

Capt. Fred E. Anderson is again on the bridge of the President Hoover.

Capt. John Griffith took over his old command, the President Taft, after a round-trip as relief skipper on the Hoover.

GRACE APPOINTMENTS

Executive vice-President **Daulton Mann** announces these appointments by order issued from New York headquarters:

Godfrey MacDonald is made freight traffic manager in charge of intercoastal traffic on the Atlantic Coast.

Zac T. George is named freight traffic manager in charge of intercoastal traffic on the Pacific Coast with headquarters at 2 Pine Street, San Francisco.

Clinton L. Bardo, president of the New York Shipbuilding Corporation, has been elected president of the National Association of Manufacturers.

Chas. R. Page, vice-president of Fireman's Fund group of fire and casualty companies, has been re-elected second vice-president of the San Francisco Chamber of Commerce. Mr. Page has been on the Chamber's Board of Directors since June 1932.

COMES TO COAST

R. H. Stidfole, recently appointed Pacific Coast manager of the Inter-Coastal Paint Corporation, arrived in San Francisco during the month to take up his duties. Our picture shows him bidding good-bye to New York Inter-Coastal representatives, W. F. Costello and H. Phillips.

These Baltimore paint manufacturers are represented by **Carleton V. Lane**, manufacturers' sales agent in San Francisco, and are the producers of Consol, a conditioning solution which has been tested with fine results by Pacific shipping lines.

Mr. Stidfole spent several months in the Coast maritime districts last year making exhaustive tests on ships' metal surfaces with the application of this product.

1934 Propeller Club Administration Launched

Our new directors, gentlemen of the Propeller Club of California, are:

John T. Greany, charter member, who has done yeoman work for the Club. John Greany is sales manager of the Bethlehem Shipbuilding Corp., Ltd., Union Plant, San Francisco, where he has been associated for 26 years.

W. Edgar Martin, marine representative of the Westinghouse Electric and Manufacturing Company in San Francisco. Eddie Martin is likewise a charter Propeller and an introduction seems futile, as he is one of our best-known and most active members. He can always be depended upon for helping with a program; he is a good navigator on the fairway and never misses a meeting unless some shipowner away from his San Francisco head-

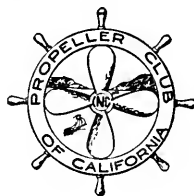


Charles H. Robertson,
Chairman Board of Governors.

quarters is in the market for a Westinghouse job. Ed has been with his company for 19 years.

C. M. Le Count, General Electric Company's marine expert in these parts. C. M. is known as "Dad" to 99 44/100 per cent of the Club. Even septigenarians call him by that paternal name. But it is a tribute to the high regard in which he is held by his friends and associates. "Dad" has distinguished himself in Propeller activities principally by his efficient handling of golf tournaments, and we have had many oc-

Official News of the PROPELLER CLUB of California



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Ralph W. Myers

casions to compliment him on his efficient handling of the intricate details of arranging for these successful events. Director Le Count is steeped in G.E. propulsion lore, coming to San Francisco (many years ago, by the way) after exhaustive training and experience at Schenectady headquarters and on the Atlantic seaboard.

Fletcher Monson. Here is a name which has been identified with



Harry T. Haviside,
President, Propeller Club
of California.

shipbuilding and marine engineering around San Francisco Bay for such a long term of years that the disclosure would intimate that "Fletch" was here to give first aid to Avila's squadron. Sales manager of the San Francisco division of General Engineering and Dry Dock Company, he knows every ship entering the port—which is a large order. Fletcher Monson is the man who always greeted you at the reservation desk at Propeller banquets and other evening affairs. He will make an exceptionally good director, say we, for we've seen him in action!

These four new Governors will join with incumbents:

Robert E. Christy
James A. Cronin
Francis M. Edwards
Wm. C. Empey
Joseph J. Geary
Bernard Mills
Ralph W. Myers, and
Charles H. Robertson

in the conduct and welfare of the Club under our new president, Harry T. Haviside. The choice of the governing board for Chairman is Charles H. Robertson.

Here's to a successful 1934 voyage under this competent command!

Chairman of the Board, C. H. Robertson, has announced the appointment of the Entertainment and Luncheon Committee. These members will serve:

Frank De Pue, chairman
W. Edgar Martin
Richard Glissman
Edward Harms
Bern De Roehie
Stanley Allen

The committee has already swung into action, and their first program as reported here, has set a high mark.

January 9 saw the most enthusiastic and best attendance for many moons. Election Day was reason No. 1. Scores of Propellers ascended to the Nob Hill heights to pay homage to the mighty successful administration of Capt. A. T. Hunter—and to congratulate and to wish "bon voyage" to the incoming President, Harry T. Havaside.

"Capt. Tom," in joining the ranks of ex-presidents, can look back with a great deal of satisfaction to a year of exceptional accomplishment. His friends are legion, and he enjoys that rare gift of inspiring men to work with him.

Our new skipper is an organizer of known ability, and we can all rest assured that the exceedingly popular and dynamic Harry T. Havaside will keep the good ship going Full Speed Ahead!

A handsome silver service which has utilitarian as well as ornamental attributes was presented to Captain Hunter with the well-merited appreciation of his fellow members.

● CAPTAIN HUNTER'S STATEMENT

Retiring President Hunter made the following statement to officially express his appreciation of the co-operation accorded him by the various committees and the membership:

"On my retirement as president of the Propeller Club of California for the year 1933, I wish to take this opportunity of contacting the entire membership and thanking them most sincerely for their splendid co-operation and friendship during the past year. No one man can carry on in any organization, and unfortunately is he who cannot say, 'My success is assured by my friends standing by me.'

"Space prohibits a complete and individual personal acknowledgment to all, such as I would like to make. During 1933 we had some outstanding activities in the Propeller Club, among which were the following: Banquets, luncheons and entertainments, organized and carried out under the able direction of our good member Al Porter, chairman, assisted by Bert Anderson, Frank de Pue, Bern de Rochie, Captain Cyril Meek and Joseph Coney. The spring banquet, held at the St. Francis Yacht Club May 25, and the Christmas Banquet and splendid stage show, held at the Fairmont hotel December 12, were outstanding in club events in San Francisco.

"The golf committee, John T. Greany, chairman, and C. M. LeCount, B. L. Havaside, Thomas Crowley, Harvey Huff, Edgar Martin and Chuck Sprawkins assisting, held two very successful tournaments, including banquets, one at the Berkeley Country Club April 20, and the other at Lakeside, October 12th.

"The California Nautical Schoolship committee was composed of Ralph Myers, chairman, assisted by Joseph Geary and Hugh Fullerton. This committee did fine work in following the activities of the schoolship California State, so ably commanded by one of our members, Captain Emile Topp. When there was some agitation to shorten the cruise of the ship and send her home to be put out of commission, resolutions were sent to the proper authorities in Sacramento and Washington, protesting against any change in the cruise, and we believe these efforts, along with other organized interests, were successful in having the cruise completed as originally planned.

● SEA SCOUTS SPONSORED

"Sea Scout activities have been well attended to by Captain L. M. Edelman, who was assisted by our late member Captain I. N. Hibberd. The Propeller Club now sponsors the Sea Scout ship Alert No. 113, and the young men can look for guidance from members of the club.

"Harbor Day activities, in which the club has always taken a major part, were very ably handled by the committee composed of Vernon Showell, chairman, and Captain William Darragh, A. E. Williams, Captain Henry Blackstone, Walter Walsh, Captain Cyril Meek and Captain Emile Topp.

● MEMBERSHIP UP TO 438

"The membership committee, C. H. Robertson, chairman, assisted by Frank Fox, Howard Oxsen, George Zeh, Millard Hickman, Captain Francis Edwards, Syd Livingstone and Captain Thomas Maher, functioned very efficiently, and were able, by their efforts, to maintain our membership to the figure of 438 at the close of the year.

"The auditing committee — Edward Egbert, P. B. Trivitt and John Thies—will tell you that the club's finances are in fine condition. After paying all expenses for the year, such as sponsorships, banquets, running expenses, etc., there is a substantial balance in the club's finances.

"Credit goes too, to Fletcher Monson, in so ably handling reservations for our affairs, and to John Dodds and Kenneth Ingraham, who handled the refreshments.

● GOVERNORS' BOARD LAUDED

"Now I come to the members of the club who compose the board of governors, and with whom I have attended regular meetings and carried on the serious business of the organization. It has, indeed, been a pleasure to work throughout the year just closed with Harry Havaside, chairman, and C. H. Robertson, Captain Francis Edwards, John Bolger, Vernon Showell, Bernard Mills, William Empey, Bert Anderson, Robert Christy, James A. Cronin, Joseph Geary and Ralph Myers, and our genial and capable secretary-treasurer, Captain Stanley E. Allen. In regard to Stanley Allen I wish to commend him particularly for his earnest, efficient and untiring efforts in so excellently carrying out the duties of his office, which he has ably filled since the inception of the club.

"May I express to these officers my sincere appreciation of their assistance to me and absolute loyalty to the Propeller Club principles.

"In conclusion, words cannot express my appreciation to the club members for the beautiful silver service set that was presented me January 9, 1934. I can only say 'Thank you,' but assure you that it comes direct from the heart."

FEBRUARY MEETINGS

Feb. 6 Feb. 20
Save the dates and come aboard!

Always a good speaker.
Always a good luncheon.
Always good fellowship.

Secretary - Treasurer Stanley E. Allen reports the following new members:

Joseph A. Moore, Jr.
James Shanley.

The following committees have been appointed for the year 1934:

Membership: C. M. LeCount, chairman; H. E. Coyle, V. W. Hoxie.

Sea Scout and Schoolship: Capt. A. T. Hunter, chairman; Capt. L. M. Edelman, Capt. F. M. Edwards.

Auditing: Fletcher Monson, chairman; P. B. Trivitt, John Thies.

CAUCHOIS, DEAN OF SHIPPING WORLD, RETIRES FROM FRENCH LINE AFTER 58 YEARS CONTINUOUS SERVICE

"Steamship Row" loses its most colorful figure and most dynamic personality when, after more than fifty-eight years of continuous service with the French Line, Oscar R. Cauchois, advisory director of the line in America and dean of the shipping business in New York, retires from active duty on the last day of this month (January 1934).

His voluntary retirement comes at the age of seventy-eight, an age at which, Cauchois thinks, "a man has a right to sit back and take it easy." The rules of the company call for obligatory retirement of all employees at the age of sixty, but so valuable to it have been Cauchois' knowledge and experience, that for each of the past eighteen years, the board of directors has passed a special resolution—often over Cauchois' objections—extending him immunity from this clause. This year, however, when time came for the same action by the board, "O. R. C." was adamant in his refusal to remain in active service, and the board, voting him the title of honorary manager—the first such honorary title granted in the company's three-quarter century—had no alternative but to accept his determined refusal, with the most sincere expressions of its high esteem and its gratitude for all he has done for the company, and for France, in the lifetime he has devoted to it.

That Cauchois believes in doing one thing and doing that one thing well, is evidenced by the fact that his entire business career has been spent in the service of the great company of which he became so important a part.

Cauchois was born in New York City, October 2, 1855, of American parents. He is of French descent, his paternal grandfather and his ancestors having come from Caux, in Normandy. He received a public school education, and, at the age of twenty, commenced his business career as junior freight clerk with the Cie Gle Transatlantique, located at that time at 55 Broadway, where, by virtue of a close application to his work, an insatiable appetite for detailed knowledge and lively determination to make the steamship business his life work, he acquired an intimate knowledge of

all the various departments of the New York Agency.

Ten years ago, an important freight service was inaugurated between France and the Pacific Coast of the United States, via the Panama Canal, and the traffic has so developed that it is being maintained by five large 10,000-ton steamers, including oil burners of the most modern construction. And in all these developments, Cauchois has played a most important part.

B. G. Willis, vice-president Fireman's Fund Indemnity Company, has been elected chairman Motor Vehicle Legislative Committee of the California State Chamber of Commerce. This newly organized committee is charged with the responsibility of writing California's new motor vehicle code.

Edward T. Cairns, vice-president, Fireman's Fund group of fire and casualty companies, who has been east for three weeks, will return to the head office in San Francisco Monday, January 29. Mr. Cairns attended fieldmen's conferences at the Eastern Department, Boston; Southern Department, Atlanta; and Western Department, Chicago. He also visited the group's offices in New York City.



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SAN FRANCISCO

GREAT PIONEER PASSES

Grief came to lumber and shipping interests alike in the passing of A. B. Hammond, pioneer lumberman and shipowner. Mr. Hammond maintained an active part in the affairs of his business, the Hammond Lumber Company, and remained "at the helm" well past his four score years.

His career would make an interesting anthology of the lumber trade on the Pacific. He extended his operations to the Oregon country in the nineties, constructing a railroad from Portland to Astoria in association with pioneer railroad men of the day. Timberland in Oregon and Northern California was acquired, and Mr. Hammond is credited with the vision that foresaw the tremendous development of California redwood.

He pioneered in the use of steel ships as lumber carriers, replacing small wooden steamers. He brought about the consolidation of redwood interests in this state. Many a San Franciscan will miss his stately figure on the Embarcadero and will pause in respectful salute to another dean of the picturesque Pacific lumber trade who has answered the call.

L. B. NUTTING, PRESIDENT OF FOSTER WHEELER, DIES

Louis Blackstone Nutting, president of the Foster Wheeler Corporation, died at his New York home on January 12, 1934. He was 63 years old and is survived by a brother, Mr. Robert B. Nutting, of Boulder, Colorado. Mr. Nutting had been ill for several weeks, and survived his wife, Fannie C. H. Nutting, by only three months, her death having occurred October 10th, 1933.

Joseph S. Oechsle, a consulting engineer of the Worthington Pump and Machinery Corporation, died at the Hahnemann Hospital in Philadelphia on December 24, 1933, at the age of 39.

Mr. Oechsle was one of the founders and subsequently president of Metalweld Incorporated, of Philadelphia, manufacturers of portable air compressors, before that company was consolidated with Worthington in 1931.

He is survived by his wife and two children, and by two brothers Carl F. Oechsle and S. John Oechsle, who are also associated with Worthington.

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Suggestion for Shipbuilders

Some sixty years ago a certain well known Clyde shipyard was faced with the alternative of taking the contract to build some iron barges at a price that was ruinously low or shutting down for lack of work. After careful figuring on costs of materials and practical elimination of allowance for overhead, the management called in all the foremen and gang bosses and laid all the cards on the table. "Here is the maximum figure that can be allowed for labor. Can you get along on that?" The foremen and gang bosses took the matter up with the men, decided half-loaf was better than no bread, and agreed to take that figure. The agreed amount was impounded and out of it regular wages were paid. To the surprise of everybody concerned there was a bonus for the men left in the fund when the job was finished. That shipyard realized then that even a common laborer, as a rule, works harder when he is working for himself than when he is just working for the profit of the boss.

Since that time in that shipyard on all contracts the labor committee elected by the men turns in the bid on labor and that amount out of contract payments is put in the labor fund. Out of this fund regular standard wages are paid and bonuses declared periodically. In one or two years the fund has taken a loss, but usually there is a good dividend for labor.

We are not advocating this procedure for Pacific Coast yards, but we know that shipyard labor has the future of the Pacific Coast shipbuilding industry in its

hands and that if Pacific Coast shipbuilding management and Pacific Coast shipbuilding labor will devise some mutually satisfactory device for rewarding efficiency in labor, then Pacific Coast shipyards will be on a much more stable basis and can bid with some assurance of success on all competitive contracts within the limit of their equipment.

American shipping services blanket the earth. Some 500 ships now ply between our ports and ports in 125 foreign lands. American products, reaching sea-board, are assured of dependable transportation, by friendly carriers, to every market on earth.

Motor Ships Versus Steamships

Since the beginning of this year, according to The Motor Ship, the tonnage of all ships ordered, excluding those under 1000 tons gross, amounts to 329,000 tons gross, comprising motor ships of 242,000 tons, or 74 per cent., and steamers of only 87,000 tons.

Other facts showing the increasing adoption of oil-engined vessels. At the present time, 67.5 per cent of the total tonnage building throughout the world is to be propelled by internal-combustion machinery. The tonnage of steamers laid up in this country is twenty-five times as great as that of motor ships, and during the past year steamer tonnage has declined by over 1,900,000 tons gross, whilst motor tonnage has increased by 162,000 tons gross.

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Pacific Marine Review

MARCH 1934

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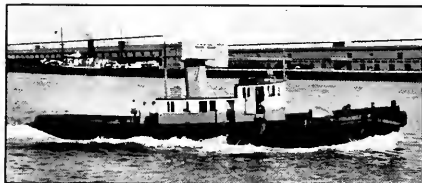
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The National Magazine of Shipping

VOLUME XXXI

MARCH, 1934

NUMBER 3

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Pacific American
Steamship Association

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Vice-Pres. and Manager

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Pacific Marine Review

VOLUME XXXI

MARCH, 1934

NUMBER 3

Editorial Comment » » »



Merchant Marine Outlook

CAPTAIN J. H. TOMB, Superintendent New York State Merchant Marine Academy, basing his views on annual reports of the Shipping Agencies in the Department of Commerce and the Post Office Department, puts forward an encouraging picture of the present status of and outlook for the American Merchant Marine as follows:

"The new figures show that American vessels are more than holding their own. That doesn't mean that they are making a profit, for most of them are at the present time being operated at a loss. It does mean, however, that American ships are maintaining essential services and in some cases actually increasing their percentage of available revenues.

"A gradual decline in the proportion of our foreign trade carried in American bottoms has apparently been arrested. During the fiscal year ending June 30, 1932, American vessels got 34.7 per cent of our combined imports and exports. Last year the figure rose to slightly more than 36 per cent. This increase may not look large when expressed in percentages, but it means several million dollars for American workers that would otherwise have gone abroad.

"In the carriage of passengers the trend has been even more pronounced. On some routes, American vessels dominate the field. Even in the North Atlantic, traditional battlefield of international shipping, there has been a marked trend to vessels of American registry. Some of our new vessels have carried capacity lists almost every trip.

"The percentage of American mail dispatched on American vessels was 69.4 during the last fiscal year, an increase of five per cent over the preceding year. The weight of trans-Atlantic mails was 26,256,838 pounds, of which American ships carried 59.6 per cent. The weight of mail to Central and South America and the West Indies was 16,794,188 pounds, of which American ships carried 82.9 per cent. From Pacific Coast ports a total of 11,212,516 pounds of mail was dispatched, of which 72.3 per cent was carried in American ships.

"Forty-four lines now hold government mail contracts. Twenty-four of the routes were established and formerly operated by the Shipping Board. They are now being operated by private owners, with what postal officials describe as a 'considerable saving' to the government. This results from the fact that the cost of mail contracts has been more than offset by the resultant decrease in Governmental expenditures. The mail contracts last year cost \$23,054,223, which is about half the annual deficit during the heyday of government operation.

"One new contract was let under the Merchant Marine Act during the past year. It went to a Southern company, and connects the Gulf area with Northern European ports, with the Mediterranean and with certain trans-Pacific ports. All ocean mail contracts require the maintenance of regular sailings and provide for replacements as needed through construction of new vessels and rebuilding of existing vessels. These are the purposes of the mail contracts, which are based upon the size and speed of vessels and not upon the volume of mail to be carried."

"Parity in merchant ships is only less important than parity in warships. It's ought to make the necessary sacrifice to secure it."

—Calvin Coolidge.

Record of S. S. Manhattan

THE December issue of Pacific Marine Review reproduced abstracts of all papers read before the meeting of the Society of Naval Architects and Marine Engineers. In the abstract of the paper on the performance of S. S. Manhattan by E. H. Rigg, the average speed of this ship was recorded erroneously. As printed, the average

speed for ten voyages was made 20.85 knots. This should have read 20.285 knots. In calling attention to this error, E. H. Rigg, Naval Architect of the New York Shipbuilding Corporation, builders of the vessel, sent us the record of this ship for the full twelve months, and we are glad to give this record here as an addition to the abstract of the paper. These figures were not available when the paper was prepared and turned in to the Society, but were read at the meeting along with the paper. The record shows fuel oil consumed for all purposes, 227.3 tons per day; average speed, 20.61 knots; average mean displacement, 29,595 tons; corresponding fuel coefficient, 36.825.

"The value of shipping as a branch of industry is enhanced by the dependence of so many other branches upon it. In times of peace it multiplies competitors for employment in transportation, and in time of war . . . it is a resource of defense."

—Thomas Jefferson

San Francisco and Interoceanic Shipping

A RECENT announcement from the Shipping Board Bureau of the United States Department of Commerce called for a formal open hearing for an official "inquiry of the prevailing policies, practices, services and charges of ocean carriers operating between Atlantic and Gulf ports and the Pacific Coast via the Panama Canal." These hearings began in New York on February 26, and at a later date, not yet announced, are to be held in San Francisco. Sixty-two carriers have been named as respondents and have been notified to appear either in person or through representation by attorneys.

The list of carriers is appended to the announcement and includes all the interoceanic lines and the coastwise and by-services auxiliary thereto. The address, San Francisco, California, seemed to be quite prominent in the list and a check-up revealed the interesting fact that out of sixty-three lines listed, twenty-seven are operated in offices in San Francisco Bay ports, twenty from offices in New York, five from Seattle, three from Portland, two from New Orleans, two from Baltimore, and one each from Boston, Norfolk, and St. Louis. Thus we see that out of the sixty-two firms recognized by the Shipping Board Bureau as important factors in the interoceanic trade, 35 firms, or 56 per cent of the total, have their home offices in Pacific Coast ports, and 27 firms, or 43 per cent, have their home offices on San Francisco's great harbor.

San Francisco has long held second place in New York in the list of American shipowning ports. Now it seems that San Francisco is ahead of her Atlantic Coast rival as owner and operator in the American interoceanic trade.

"The consumer in the most inland state derives the same advantage from our navigation and foreign commerce that he does who resides in a maritime state."—Andrew Jackson.

"All the great commercial nations pay heavy subsidies to their Merchant Marine, so that it is obvious that without some wise aid from Congress the United States must lag behind in the matter of a Merchant Marine."

—William Howard Taft.

Twenty-Five Years Ago

IN MARCH, 1909, PACIFIC MARINE REVIEW RECORDED:

That the second session of the sixtieth Congress had approved a bill calling for additional new navy construction appropriation of \$38,819,595 out of which there were to be built two first class battle ships, five destroyers, one fleet collier, four submarines and several miscellaneous craft;

That merchant steel shipbuilding in the United States was practically dormant;

That Tacoma was getting ready to build a fireboat and Seattle was having rather a bitter controversy over the question of whether to build a new fireboat or to repair the Suquamish;

That Willamette Iron and Steel Works Company of Portland had just finished successful trials of the steel passenger steamer, H. B. Kennedy, for the Seattle-Port Orchard run attaining a speed of almost 21 miles per hour;

That Congress had defeated the proposed amendment to the Ocean Mail Act of 1891 which amendment would have increased the compensation for American Steamers on American mail routes from \$2.00 per statute mile to \$4.00 per statute mile for vessels of over 5000 gross tons and over 16 knots speed;

That the same Congress passed bills (1) increasing the accommodations and comforts of steerage passengers, (2) allowing deduction of certain spaces from gross tonnage measurement and making American practice conform to that of Britain et al, and (3) authorizing the establishment of aids to navigation in Alaskan waters;

And—

That the inauguration message of the incoming President Taft testified to his interest in the development of American foreign trade by the upbuilding of an adequate American Merchant Marine.

There was favorable mention and discussion of the patented improvements in hull construction that had recently been designed by Edward S. Hough, consulting naval architect and marine engineer of San Francisco (The son of this noted engineer is the present senior partner of the firm of Hough and Egbert, San Francisco.)

A syndicate composed of Captain Harry Goodall and friends were trying to finance the construction of a steel floating drydock to compete with the Hunter's Point graving docks of the San Francisco Dry Dock Company which had been recently acquired by the Union Iron Works Company.

Correspondence

When will the American Merchant Officers Come of Age?

Last fall at a luncheon of the Propeller Club of New York City an Admiral of the United States Navy stated that he favored the establishment of a National Merchant Marine Academy to train officers and crews for the merchant marine and suggested that Navy officers could be used as instructors. During his talk he also mentioned that he was of the opinion that the present Navy Training Station on the Great Lakes would be ideal for such a purpose.

Statements of this type have always surprised this writer and have forced him to ask what is the matter with the American licensed officer that he is not considered capable to train his own men but must fall back on the Navy to do this training?

While the remarks of the Admiral concerning the needs of a Merchant Marine Academy are only too true, his other statements do not hold water. Let us see what qualifications a navy officer has, to be competent to train officers of the American Merchant Marine. The navy officer has, no doubt, the very best training in navigation and nautical astronomy as well as in marine and electrical engineering of any of our seagoing compatriots. He has learned to obey and how to enforce discipline. These are all qualifications that are necessary for officers of both the Merchant Marine and the Navy. But beyond these there is no field in which they duplicate each other. One of the most important duties of the merchant officer is quite foreign to his brother in the Navy. This is the handling of passengers and of cargo.

To run any steamship line efficiently it is absolutely necessary that the officers in charge of the ship, from the master down to the youngest junior officer, are well grounded in the stowage of the hundreds of different types of cargo that are carried on any merchant ship. Not only should they be expert in the subject of stowage, but they should also be well versed in rigging cargo booms, in the handling of heavy weights with the ship's five- or ten-ton booms. They should be well trained in the legal aspects of bills of lading, the cargo and passenger manifest, marine insurance and the legal duties and privileges of master and officer as outlined in the "Navigation Laws of the United States".

In regards to passengers the merchant man should have experience in running a passenger liner in such manner as the manager of a large hotel runs his business. He should always see to the utmost safety and comfort of his guest, for as such he should consider the passengers travelling on his ship. Efficient cargo and passenger training cannot be acquired over night but takes long years of hard work before a person is effi-

cient in this line. To teach the future merchant officer his duties as cargo officer and how to manage a passenger liner efficiently would call for the services of a person who himself has had years of experience in this field. As the merchant officer generally navigates a far greater number of miles per year than the navy officer and as he had to pass examinations in navigation and nautical astronomy, it should be quite possible to have men who hold a master mariner's certificate to assume the duties of instructing these subjects to the students at a Merchant Marine Academy and it certainly would not be necessary to fall back on a navy officer to teach these subjects.

There then actually remains no good reason why the Merchant Marine Academy should not be managed by merchant officers who have special teaching qualifications. In fact the merchant officer is the only logical person qualified to be an instructor at such an academy. No business man would consider having his son enlist in the quartermaster department of the army so that later he can become a business man. Why then, should the merchant marine officer fall back on the instructions of a navy officer to learn his profession?

The suggestion of the admiral that the present day navy training station on the Great Lakes would be ideal for the training of the merchant officers is naturally quite impractical. Why should the merchant officer who has to pay all travelling expense out of his own pocket, and a mighty lean one at that, travel for example from San Francisco to Chicago to attend the academy? If attending an academy on the Great Lakes where would he have any opportunity to visit ocean going steamers of a great variety of types and see practical demonstrations of handling general cargo, of docking, of taking on or discharging passengers? Where would he have an opportunity to visit shipyards in which ocean going steamers are being built? No, a Merchant Marine Academy should be on the sea coast and naturally there should be more than one such academy. The very smallest number we should have would be two, one academy on the east coast and the other on the west coast, so that the merchant officer does not need to pay too much money in travelling expense when wanting to go to school. If a small country like Germany, a country the size of the state of California, has nine federal Nautical Academies for their merchant officers, why should not a country the size of the United States with a merchant marine far larger than Germany's have at least one academy in San Francisco, one in New Orleans, one in New York and one in Boston or Baltimore?

Another reason why we should not use navy officers to teach the merchant officer is the fact that the navy officer would either draw navy pay besides his academy pay, or if he is a retired man, he would draw a substantial pension from the navy besides the salary from the academy. This double pay would be very unjust in

(Please turn to Page 77)

An Honor Roll of Safety Minded Shipping Executives

The Committees operating the Accident Prevention Department maintained by The Pacific American Steamship Association, The Shipowners Association of the Pacific Coast, and the Waterfront Employers

ASSOCIATION'S EXECUTIVE SAFETY COMMITTEE

| | | | |
|--|--|---------------------------------|------------------------------|
| Bryan, J. B. | Longshoremen's Assn. | Ludlow, Capt. J. G. | Calif. Stev. & Ballast Co. |
| Bullock, James | Dollar Steamship Lines | Myers, R. W. | Hobbs, Wall & Co. |
| Edwards, Capt. F. M., Chairman | Matson Navigation Co. | Nichols, Capt. J. F. | Sudden & Christenson |
| Jones, H. B. | Standard Oil Co. | Parker, E. R. | McCormick Steamship Co. |
| Kane, Capt. N. J., Vice-Chairman | American-Hawaiian S. S. Co. | Petersen, Capt. W. J. | Marine Service Bureau |
| Kelly, H. | Pacific Steamship Lines | Pickard, B. O., Secretary | Accident Prevention Bureau |
| Levin, N., Advisor | Shipowners' Assn. of the Pacific Coast | Stow, A. E., Advisor | American-Hawaiian S. S. Co. |
| Lion, Capt. W. T. | Swayne & Hoyt, Inc. | Williams, J. P., Advisor | Pacific American S. S. Assn. |

PACIFIC COAST MARINE SAFETY CODE COMMITTEE

● San Francisco Bay Ports

| | |
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| Blackstone, Capt. H., Advisor | Marine Office of America |
| Bryan, J. B. | Longshoremen's Association |
| Davis, S. C., Advisor | Accident Prevention Bureau |
| Edwards, Capt. F. M., Chairman | Matson Navigation Co. |
| Fry, C. H., Advisor | California State Industrial Accident Comm. |
| Kane, Capt. N. J., Advisor | American-Hawaiian S. S. Co. |
| Ludlow, Capt. J. G., Advisor | Calif. Stev. & Ballast Co. |
| Petersen, Capt. W. J., Advisor | Marine Service Bureau |
| Pickard, B. O., General Chairman | Accident Prevention Bureau |
| Pillsbury, W. H., Advisor | U. S. Compensation Comm. |
| Stow, A. E. | American-Hawaiian S. S. Co. |

● Los Angeles and San Diego Ports

| | |
|-----------------------------------|---------------------------------------|
| Bankson, G. C. | Marine Terminals Corp. of Los Angeles |
| Hill, Capt. R. | Metropolitan Stev. Co. |
| Limecooly, C. G., Chairman, | L. A. and San Diego Ports |
| Mills, E. A., Advisor | Crescent Wharf & Warehouse Co. |
| Travers, J. H., Advisor | Marine Service Bureau, L. A. |

● Columbia River and Oregon Ports

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|--------------------------------------|---|
| Brady, Wm. | Brady-Hamilton Stev. Inc. |
| Beckett, R. J., Advisor | W. J. Jones & Son |
| Cannon, F. D., Advisor | Marine Safety Assn. of the Columbia River |
| Gilkey, Capt. J. B., Chairman, | Portland Stevedoring Co. |
| MacDonald, Capt. P. | Oregon Stevedoring Co. |

● State of Washington Ports

| | |
|---------------------------------|--|
| Bjorklund, J. C. | Intern'l Longshoremen's Assn. |
| Delanty, H. M., Secretary | Grays Harbor Stev. Co. |
| Foisie, F. P., Advisor | Shipping Federation of State of Washington |
| Gould, W. D., Advisor | Matson Terminals, Inc. |
| Haines, A. F., Advisor | American Mail Line |
| Marshall, Wm., Advisor | U. S. Compensation Comm., Seattle, Wash. |
| Moore, Wm., Advisor | Waterfront Employers of Seattle |
| Weber, J., Chairman | State of Wash. Ports |
| Wells, H., Advisor | Griffiths & Sprague Stev. Co. |
| | Waterfront Employers of Tacoma. |

● Washington, D. C.

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| Gregory, F. C., Advisor | U. S. Compensation Comm. |
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SAN FRANCISCO SHIPS' ADVISORY SAFETY COMMITTEE

| | | | |
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| Ashman, W. K. | Dollar Steamship Lines | Hansen, C. R. | Nelson Steamship Co. |
| Astrup, R. E. | Alaska Packers Association | Heath, Capt. C. F. | Southern Pacific Ferries |
| Bullock, James | Dollar Steamship Lines | Hickman, H. D. | Key Terminal Railways |
| Bunker, W. | General Steamship Corp. | Hill, R. | McCormick S.S. Co. |
| Calway, J. | American-Hawaiian S.S. Co. | Hustler, A. C., 3rd Vice-Chairman | Matson Navigation Co. |
| Carlson, A. | Nelson Steamship Co. | Keene, Capt. A. C., | |
| Christie, J. A. | Santa Fe Railway Co. | 2nd Vice-Chairman | American-Hawaiian S.S. Co. |
| Clarke, Capt. H. D. | General Petroleum Corp. | Kelly, H. | Pacific Steamship Lines |
| Clements, J. C. | Pacific Steamship Lines | Lion, Capt. W. T. | Swayne & Hoyt, Inc. |
| Cox, W. | Associated Oil Co. | McDonald, O. | General Petroleum Corp. |
| Cronin, J. A., 1st Vice-Chairman | Standard Oil Co. | Mills, B. | American-Hawaiian S.S. Co. |
| Donavan, Capt. K. H. | Panama Pacific Line | Olson, W. E. | McCormick S. S. Co. |
| Gelhaus, H. F. | Swayne & Hoyt, Inc. | Pearch, Capt. W. G., | |
| Gilbert, Capt. C. | Grace Lines, Inc. | General Chairman | Dollar Steamship Lines |
| Hakens, H. | Grace Lines, Inc. | Pickard, B. O., Secretary | Accident Prevention Bureau |

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|--------------------------|-------------------------|
| Presser, J. J. | Pacific Steamship Lines |
| Rumsey, Capt. J. A. | Standard Oil Co. |
| Scott, I. | Matson Navigation Co. |
| Senter, E. T. | Grace Lines |
| Sheridan, J. I. | Union Oil Co. |
| Sundby, Oscar | Alaska Packers Assn. |

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| Taylor, S. | |
| Tietjen, Capt. B. H. | |
| Vickery, W. | |
| Williams, G. F. | |
| Wolters, H. | |
| Young, John | |

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| Swayne & Hoyt, Inc. | |
| McCormick S.S. Co. | |
| Standard Oil Co. | |
| Grace Lines | |
| Matson Navigation Co. | |
| Nelson S.S. Co. | |

SHIPS' CONSTRUCTION ADVISORY SAFETY COMMITTEE

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| Blackstone, Capt. H., Chairman | Marine Office of America |
| Bullock, James | Dollar Steamship Lines |
| Bunker, W. | General Steamship Co. |
| Coxon, P. A. | Moore Drydock Co. |
| Dickie, A. J. | Pacific Marine Review |
| Dickie, D. W. | Consulting Naval Architect |
| Gelhaus, H. F. | Swayne & Hoyt, Inc. |
| Greany, J. T. | Bethlehem Shipbuilding Corp. |
| Lion, Capt. W. T. | Swayne & Hoyt, Inc. |

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| Miller, David | |
| Mills, B. | |
| Pearch, Capt. W. G. | |
| Pickard, B. O., Secretary | |
| Rumsey, Capt. J. A. | |
| Tibbets, Capt. J. | |
| Westling, L., Vice-Chairman | |

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| Lloyd's Register | |
| American-Hawaiian S.S. Co. | |
| Dollar Steamship Lines | |
| Accident Prevention Bureau | |
| Standard Oil Co. | |
| Bureau of Navigation and Steamboat Inspection | |
| Matson Navigation Co. | |

SAN FRANCISCO STEVEDORING ADVISORY SAFETY COMMITTEE

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| Clausen, Capt. C., 1st Vice-Chairman | Calif. Stev. & Ballast Co. |
| Cribbin, J. P., Chairman | Seaboard Stevedoring Corp. |
| Davis, S. C., Secretary | Accident Prevention Bureau |
| Duttre, E. J. | Associated Terminals |
| Eakin, J. K. | Marine Terminals Corp. |
| Gade, Capt. J. S., 2nd Vice-Chairman | S. F. Stevedoring Co. |
| Jensen, Capt. T. | Pacific Lighterage Corp. |

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| Kelly, H. | Pacific Steamship Lines |
| Pickard, B. O. | Accident Prevention Bureau |
| Russell, Capt. J. A. | Matson Navigation Co. |
| Sargent, G. L. | Grace Lines |
| Schurmer, Geo. 3rd Vice-Chairman | Schirmer Stevedoring Co. |
| Scott, I. | Matson Navigation Co. |
| Smith, Capt. H. | S. F. Stevedoring Co. |
| Strittmatter, H. | McCormick Steamship Co. |
| Thompson, C. B. | Pacific Lighterage Corp. |

STEAM SCHOONER ADVISORY ACCIDENT PREVENTION COMMITTEE

| | |
|---------------------------|---|
| Freeman, S. D. | S. S. Freeman & Company |
| Levin, N., Secretary | Shipowners' Association of the Pacific Coast |
| Nichols, Capt. J. F. | Sudden & Christenson |
| Pickard, B. O. | Accident Prevention Bureau |

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| Reed, John L. | J. R. Hanfy Company |
| Robinson, R. C. | Hammond Lumber Company |
| Strittmatter, H. | McCormick Steamship Co. |
| Vincent, H. F., Chairman | E. K. Wood Lumber Co. |
| Young, John | Nelson Steamship Company |

LOS ANGELES HARBOR SAFETY COMMITTEE

| | |
|----------------------------------|---------------------------------|
| Bankson, G. C. | Marine Terminals Corp. of L. A. |
| Banning, J. B. | Matson Navigation Co. |
| Bayly, Chas. | Crescent Wharf & Whse. Co. |
| Beck, W. C. | Nelson Steamship Co. |
| Burbridge, C. S., Secretary | Marine Service Bureau |
| Christiansen, C. | Southwestern Stevedoring Co. |
| Germain, P. H. | Pacific Steamship Lines |
| Hill, Capt. R. | Metropolitan Stevedoring Co. |
| Karlson, R. | Seaboard Stevedoring Co. |
| Limcoln, C. G., Chairman | S. S. Freeman & Co. |
| MacQuiddy, J. C. | Standard Oil Co. |

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| McGowan, F. J. | Outer Harbor Dock & Whse Co. |
| McKenna, J. | Grace Line, Inc. |
| Miller, N. | Banning Company |
| Nichols, E. | Marine Service Bureau |
| Pegg, A. O. | Union Oil Co. |
| Richley, M. A. | McCormick Steamship Co. |
| Robertson, Wm. | Luckenbach Steamship Co. |
| Scarborough, P. | E. K. Wood Lumber Company |
| Stewart, R. A. | American-Hawaiian S. S. Co. |
| Travers, J. H. | Marine Service Bureau |

TANKER ADVISORY SAFETY COMMITTEE

| | |
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| Anderson, C. P. | Richfield Oil Company |
| Dobler, D. | The Texas Company |
| MacQuiddy, J. C. | Standard Oil Co. |
| Malsced, J. W. | Shell Oil Co. |

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| Murray, J. J. | Associated Oil Co. |
| Pegg, A. O. | Union Oil Co. |
| Travers, J. H., Secretary | Marine Service Bureau |
| Woll, A. O., Chairman | General Petroleum Corp. |

MARINE SAFETY ASSOCIATION OF THE COLUMBIA RIVER

| | |
|--------------------------------------|--|
| Brady, Wm., 2nd Vice-President | Brady-Hamilton Stevedoring Co. |
| Beckett, R. J., President | W. J. Jones & Son |
| Cannon, F. D. | Marine Safety Association of Columbia River |
| Davis, E. C. | Oregon Stevedoring Co. |
| Eichman, J., 1st Vice-President | Brady-Hamilton Stevedoring Co. |
| Foeller, V. J., Asst. Secretary | Marine Safety Association of Columbia River |
| Gilkey, Capt. J. B. | Portland Stevedoring Co. |
| Herring, J. C. | International Stevedoring Co. |
| Jones, C. R. | W. J. Jones & Son |

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| Johnson, Capt. C. H. | Longview Stevedoring Co. |
| Larson, Capt. C. E. | McCormick Steamship Co. |
| MacDonald, P. E. | Oregon Stevedoring Co. |
| McKinley, Wm. | Commission of Public Docks |
| Mills, F. N. | American-Hawaiian S. S. Co. |
| Moore, J. R., Secretary | Pacific Steamship Lines |
| Morris, D. W. | Portland Stevedoring Co. |
| Piper, R. E. | Luckenbach Steamship Co. |
| Sharp, T. C. | Seaboard Stevedoring Corp. |
| Sweet, Capt. F. M. | Stevedore Service Co., Astoria |

Ratify the Convention for Safety of Life at Sea

*Treaty now pending in Senate should be Promptly
passed to protect American Merchant Shipping
on International Trade Routes*

By Henry H. Heimann

Director of U.S. Shipping Board Bureau



Henry H. Heimann, Director, Shipping Board Bureau of Department of Commerce.

The attitude of the Shipping Board Bureau toward the Treaty pending before the Senate relative to the Convention for Safety of Life at Sea has been repeatedly placed on record. There is no change in the position of the Bureau. The Treaty is a humanitarian measure and an international covenant of a nature that the Bureau is happy to endorse.

The Safety of Life at Sea convention was signed in London on May 31, 1929. The signatories were eighteen of the leading maritime nations, including the United States Government which had taken an important part in the preliminary work of the Conference. The fact that all of the eighteen nations signed the Convention is an indication of the worthiness of the objects sought to be attained. These objects are so well known as to scarcely need detailed exposition. As a background for the London Conference, it would not be amiss to restate that the world's experts assembled had at their command a vast amount of pertinent data, much of which related to the hundreds of marine casualties suffered during the war. It is to their credit that they used

every effort to secure for the first time in history the international adoption of modern methods for safety of life and property at sea.

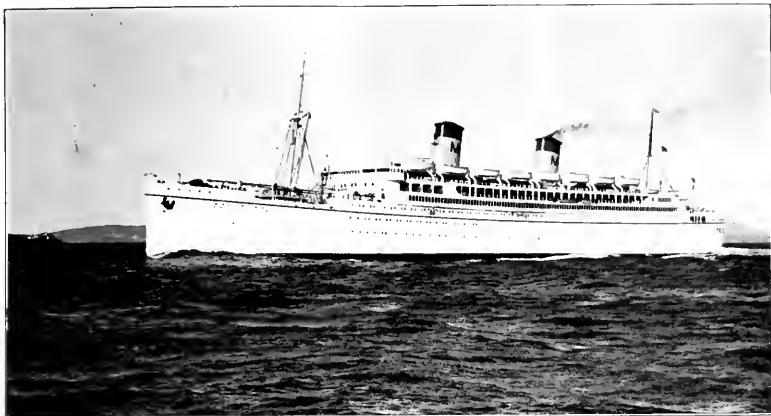
Having in mind the old maxim which says that the best way to save life at sea is to save the ship, the delegates wrote into the convention certain requirements designed to keep the ship afloat as long as possible, to prevent undue listing when damaged, and to minimize the spread of fires. Supplementing these fundamental requirements, which affected the design and construction of the ship, many other safety provisions were incorporated in the final draft of the convention. These dealt with such important subjects as lifeboats and rafts, navigation, crew efficiency, and the installation of radio equipment.

The safety millennium could not be reached in the first effort for obvious reasons, one of which is the factor of cost and competition, but the treaty is an epoch-making agreement in the sense that it launches a program that would greatly increase safety of life at sea.

Eleven nations have ratified this agreement, while



The owners and builders of S.S. Manhattan have incorporated in her hull and equipment safety standards well in excess of the requirements of the London convention for safety of life at sea.



American vessels like the U.S. Mariposa, having safety construction and equipment well in excess of convention requirements, may be held up for unnecessary delay and expense at foreign ports unless the Senate ratifies the Convention.

seven others have formally announced their adherence to its provisions. It has been in effect for most of the principal maritime nations since January 1, 1933.

Perhaps the fact that we have had so many acute and distressing problems in our own nation, all requiring consideration of the Senate, accounts for the failure of the Senate to ratify the treaty in response to a recommendation from the President on December 17, 1929, that it be ratified. On January 1 of last year, a brief hearing was held by the Senate Foreign Relations Committee, and at this hearing it developed the treaty had received virtually unanimous endorsement of naval architects, marine engineers, shipowners, shipbuilders, admiralty lawyers, marine underwriters and Government officials concerned with and interested in shipping. The Shipping Board has in times past strongly favored ratification, and the Shipping Board Bureau continues expressing itself as hopeful that an early ratification will be realized. In opposition to the Bill there has been presented by a labor group a contention that if the treaty were put into effect for vessels of the United States, it might nullify certain provisions of the LaFollette Seamen's Act. Government experts who have given careful consideration to both the treaty and the LaFollette Seamen's Act feel that labor's apprehensions are unwarranted.

While the treaty has much to commend espousal on humanitarian grounds, even more practical reasons can now be advanced for its prompt ratification. At present the American ship owners are confronted with the fact that they are unable to obtain the International Safety Certificates provided for by the Convention because of lack of ratification of the treaty. Failure to possess these certificates exposes American ships to possible delays and expense incident to enforced surveys and inspection in foreign ports.

Realizing that only the forbearance of our competitors could obviate this danger, the Secretary of Commerce on September 25, 1933, requested the State De-

partment to use its good offices with the ratifying and adhering governments, to the end that a reasonable period of grace be granted during which the International Safety Certificates would not be demanded of American ships. While the State Department took prompt steps in the matter, I am informed that thus far only three nations—Spain, Portugal and Canada—have agreed to waive the certificates pending action on the treaty by the United States Senate.

It is fair to assume that the failure of the Senate to ratify the Safety Convention at the First Session of the Seventy-third Congress was due primarily to the press of legislation incident to the President's recovery program. The Department has recently taken the matter up with the Chairman of the Foreign Relations Committee and has every reason to believe that action will be taken at the present session. The treaty has a position near the head of the calendar and should be reached shortly after the St. Lawrence Seaway treaty is disposed of.

Ratification of the Convention will mean better ships, safer navigation, higher standards of equipment, a more widespread use of radio, quicker response to appeals for aid in cases of marine disaster, avoidance of needless loss of life among passengers and crew, and the advantage of international cooperation in regulating safety requirements for ships operating on international voyages. In the belief that these high objectives are worth striving for, let us hope that the United States will soon take its place among the ratifying nations.

"The enlightened policy by which rapid communication with distant parts of the world is established, by means of American-built steamers, would find ample reward in the increase of our commerce, and in making our country and its resources more favorably known abroad."

—James Knox Polk.

Give Us

Fair Play for American Shipping

Some Comment on Senatorial Investigation Methods

By Arthur M. Tode

President, The Propeller Club of the United States

A conservative estimate of the number of people who listened in on Senator Hugo L. Black's radio address on January 24 places the figure at two million. The address was broadcast over the National Broadcasting Company's coast-to-coast network at 10:30 P.M., Eastern Standard Time. In radio parlance, the Senator was accorded a "choice spot" and it is obvious that he was assured of a large audience in all parts of the country.

To those who have followed the investigation of the Special Senate Committee, most of Senator Black's statements were not news; and, sorry to add, they found that the Senator has not altered his practice of presenting half truths and misleading statements. Particularly is this to be regretted, because the Black Committee possesses a tremendous power for righting whatever is wrong with American shipping, for the constructive upbuilding and perpetuation of the American Merchant Marine.

It is safe to say that those who are genuinely interested in the constructive economic development of American shipping in foreign trade would be glad to align themselves solidly behind the Black Committee were they asked to do so, and were they assured that the committee is actuated solely by the desire to improve our marine industry. Not in the least do they favor steamship company officials who have, it would appear, taken unfair advantage of a policy intended to benefit the American people by developing an American Merchant Marine adequate to the peacetime commercial needs of the country and to act as a naval auxiliary in time of emergency. They do not withhold credit from Senator Black for disclosures at the Committee's hearings; rather are they energetically in full accord with the recommendations contained in the concluding paragraph of the Senator's radio speech.

● **incorrect Inferences**

But if their advice were asked—and, up to the present, it has not been—they would be unanimous in their injunction to Senator Black to be fair, to bring out the whole story instead of only a part, and to tell the whole truth in his public utterances.

It is readily understood that when "on the air", time is limited and often the entire picture cannot be presented—but why present only derogatory points which in this case the Committee has uncovered? The inference to be drawn by the uninitiated who listened to this radio address, cannot but be that all the taxpayers' money which has been spent on and for American shipping has been practically wasted; that all vessel owners and operators have wronged the government; that

none has made a sincere effort, nor has anything of permanent value to our sea services been accomplished with the funds expended.

Many who have attended the committee's sessions, either as witnesses or auditors, or who have read the printed transactions received the impression that the hearings have been conducted by the Senator much in the manner of a district attorney prosecuting a trial. Quoting from a recently syndicated newspaper article, "To sit in the hearing room is like going to the theatre." He does not hesitate to take a shot in the dark—sometimes to the discomfiture of witnesses whose memory is jostled in the process. Witnesses are frequently not afforded the opportunity to amplify answers, yet many of the responses to his questions demand elaboration. He is seemingly not interested, so long as he has been successful in obtaining what he probably considers a response sufficient upon which to base his contention of skull-duggery.

From an examination of the Committee's proceedings, it appears that the Senator has yet to ask a question, the answer to which might tend to develop a constructive suggestion for the upbuilding of American shipping. He has summoned no expert witnesses to testify publicly concerning their personal opinions or obtain facts regarding the economic development of American shipping. Perhaps that will come later, but he has not asked a witness the question, "What would you do or suggest?" to better a condition which many deem as wrong.

And so it is not surprising when, in his radio address, the Senator delivers statements which, lacking amplification, tend to mislead the manufacturer of the east, the farmer in the corn belt, the rancher of the southwest, or the fruit grower of the Pacific slope.

● **Examine the Record**

His opening statement is typical: "Since the beginning of the World War, the United States Government has spent approximately four billion dollars to build up an American Merchant Marine". Surely the Senator knows better than that. His address was announced as a discussion of government mail contracts. To the average citizen whose smattering knowledge of the subject is gleaned from a cursory reading of newspaper reports of the Committee's disclosures, the inference is justified that this huge sum has been spent upon subsidies "to build up an American Merchant Marine".

But as the Hon. Alfred E. Smith is wont to say, "Let us look at the record". Undoubtedly four billion dollars have been spent upon American ships and shipping

since the World War began, but by far the greater proportion of this amount has been spent to correct a situation in which this country found itself when the war cracked down upon it. Shipping Board reports disclose that the cost of these corrective measures was more than three-fourths of the amount mentioned by the Senator. Through the Shipping Board and the Emergency Fleet Corporation, the government found it necessary to acquire by seizure, purchase and construction, 2,542 vessels of 14,703,461 gross tons. The exact cost of construction and reconditioning totaled \$2,670,612,755.81. Additional expenditures for shipbuilding plants, housing projects, transportation and the like, amounted over \$9½ millions. All told, the cost of the Shipping Board up to the end of 1920 was close to 3¼ billions,—not, however, for the purpose of upbuilding a permanent American Merchant Marine, but to provide the "Bridge of Ships" so vitally necessary to transport supplies and munitions—to win the war. Call it, if you will, a fine we paid for lack of preparedness; a penalty for decades of neglect to our merchant shipping while depending upon other nations' ships for the overseas transportation of our goods.

To sum up, the last annual report of the Shipping Board—now a bureau of the Department of Commerce—shows that appropriations for the Board and Fleet Corporation from their inception in 1916 to June 30, 1933, total \$3,645,844,008.68 of which, we repeat, over 3¼ billions represent part of the cost of winning the war, and most of the balance represents the cost of government operation of shipping lines prior to their acquisition by private interests.

● Cost of Mail Subsidies

Let us analyze another of Senator Black's statements. Further on in his address, he states "Since 1928, the government has contributed practically one billion dollars by mail subsidies, ship sales and government loans to shipping interests."

Again examining the record, let us take first the cost of mail subsidies. The latest report of the Postmaster General contains a table showing the cost of merchant contracts awarded under the Merchant Marine Act, 1928, what the cost would have been at poundage rates paid vessels of American registry, and the net cost of contract service:

| | Cost of merchant marine routes | Cost on weight basis at rates paid American ships | Net cost of merchant marine routes |
|----------|--------------------------------|---|------------------------------------|
| 1929.... | \$ 9,304,217.82 | \$1,685,159.97 | \$ 7,619,057.85 |
| 1930.... | 13,066,440.87 | 2,272,738.36 | 10,793,702.51 |
| 1931.... | 18,818,263.76 | 2,710,645.82 | 16,107,617.94 |
| 1932.... | 22,402,761.54 | 3,266,544.92 | 19,136,216.62 |
| 1933.... | 26,054,680.35 | 3,000,457.17 | 23,054,223.18 |

Adding the figures in the last column, it is found that the total cost of ocean mail routes since the adoption of the Merchant Marine Act of 1928, or the subsidy to American shipping thus far, is \$76,710,818.10. Ships built and reconditioned by mail contractors during this period involved the investment of \$160,804,151. In the event of an emergency occurring this year—or next—who can say what the value of these ships would be to America?

As to ship sale and government loans, according to a recent statement of the Hon. Schuyler Otis Bland, Chairman of the House Committee on Merchant Ma-

rine, Radio and Fisheries—Mr. Bland is particularly exact in compiling his figures—the purchase money still unpaid for lines aggregates \$24,909,094.33, while the loans on ships built and reconditioned amount to \$126,614,843.33, or a grand total of \$151,523,937.86. These moneys are secured by a first lien on the ships, but if seized by the government, the investment of \$109,515,349.39 made out of private funds by American steamship companies in initial and installment payments on these vessels will be lost by these private interests.

While it is not conceded this hundred and fifty-odd million can be fairly considered a contribution in any sense of the word, this figure, added to the cost of ocean mail route is more than three-quarters of a billion shy of the "contribution" the Senator claims.

● Cost and Sales Prices

Of course, shipping men know how the Senator accounts for this difference, or at least they think they do. Every shipowner thus far interrogated by Senator Black has been questioned as to the price paid for vessels purchased from the Shipping Board, whereupon the Senator has entered in the record the cost of building the ships—without amplification as to the extraordinary conditions applying at the time of construction. For example, from the record of the Committee's hearings:

THE CHAIRMAN: Those boats were purchased by the Dollar Steamship Co. of California, seven were purchased first?

MR. DOLLAR: Seven 502's.

THE CHAIRMAN: For \$550,000?

MR. DOLLAR: Yes, sir.

THE CHAIRMAN: The records sent up by the government show that these seven ships cost the government \$29,071,823, or an average per gross ton of \$394.14. And again:

THE CHAIRMAN: I will give the record to the reporter so that he can copy the names of the boats, but the price per deadweight ton given us—the sales price—was \$27.15.

MR. WOOD (Barber S. S. Co.): Yes, sir.

THE CHAIRMAN: Total sales price \$2,261,242.05.

MR. WOOD: Yes, sir.



THE CHAIRMAN: These ships cost the government \$18,156,566.

This is repeated in the case of every witness to whom the situation applies. If, as it appears, Senator Black bases his contention on the premise that the difference between war-time construction cost and the sales price from five to fifteen years later constitutes a "contribution", it is obvious that he is employing a wholly unsound and unfair basis upon which to prove his point. In the case of the purchase by the Barber Steamship Co., a survey of world conditions at the time of purchase will show that this company paid a higher price per ton than the world market tonnage price for ships of comparable type, age and condition.

● The Debacle of 1920.

Again let us consult the record. In 1920 the Shipping Board inaugurated policies for the sale of ships, offering deferred payments, and up to the end of that year 426 vessels were sold at prices up to \$200 per deadweight ton. Like chickens come home to roost, most of the ships were back on the Board's hands in a short while. Many of the sales were cancelled; in many other cases the vessels were turned back to the Board. During the fiscal year 1921, no less than 121 vessels were turned back to the Board; the amount of the net selling price on these was almost 80 millions. Examining conditions surrounding the existing market for ships, the Board found that its then asking price for steel cargo tonnage of \$160 to \$185 per deadweight ton was completely out of line with world market prices. In 1921, a study of world ship markets indicated that a price of about \$30 per deadweight ton would be fair for the best steel tonnage.

● Steamship Conferences

The Senator's claim that American shipping companies have formed combinations with foreign ships, "fixing rates so high as to place additional burdens upon farm, mine and factory," touches upon a highly contentious subject, for he evidently has reference to the system of steamship conferences which existed long before American ships were available in sufficient numbers to carry any appreciable volume of American commerce. The fact is that American companies have become members of various conferences rather as a matter of protecting their own interests and in order to have some voice in methods of competition and trade practice. Conference agreements must have the approval of the Shipping Board, whose duty it is to protect both the shipper and the ship-owner. Rates for specific commodities generally are not made a part of the conference agreements; but rates are regulated largely by competition.

Granted that rate-making cannot be regarded as a scientific matter, practically every conference has the competition of one or more non-conference lines, and competition within the conferences themselves acts as a further brake upon the making of unreasonable rate structures. In any discussion of ocean freight rates, one would undoubtedly be hard pressed to prove this contention, for it must be remembered that the primary duty and responsibility of American ships in foreign trade is to provide for the American exporter and importer an equality of rate against that of the ships of any competing nation in the world. What would the

American shipper pay if there were no American ships in foreign trade?

It is pertinent to here remind the Senator that the system of steamship conferences might with justification be considered a fore-runner of the present-day regimentation of industry known as N.R.A.

● Those Scandalous Profits

The Senator's charge in his radio address concerning the amounts of money made out of subsidized ship operation by various individuals are not sufficiently complete to present a true picture to the layman. Granted that conditions in certain cases, as disclosed by the investigation, have reflected unfavorably on certain individuals, is it fair to imply that these conditions apply to all? He is speaking about mail contracts. Would it not be fairer to elucidate more clearly, and point out that numerous instances cited occurred before the Merchant Marine Act of 1928, providing for ocean mail subsidies, was adopted?

For example, he states "Another man made in net profits more than \$3,500,000 from the time he began to have government contracts until 1933". The inference is that these were mail contracts, but the facts appear to prove that this figure covers the period of from 1918 to 1932, inclusive, and represents salary, cash and stock dividends, a profit on stocks and bonds, a substantial increase in book value over costs of stocks now held but never realized. In other words, a substantial part of this figure represents what this man might have made out of his confidence in investment in American steamship companies, had he cashed out everything at the peak of 1929. It was brought out in the testimony concerning the line of which this man is president that he has taken no dividends from the company since 1929, and has drawn since April, 1930, \$17,500 in salary from this company which has invested approximately \$5,000,000 in new construction.

During the period from 1918 to 1928, companies with which this shipping man was associated did have contracts with the government—contracts for the operation of ships, and various other agreements, but it is felt that the Senator, by neglecting to amplify his statement has evidenced a distinct unfairness to this individual.

Certainly the American marine industry does not condone conditions which the Committee has brought to light and which demand correction. Aneant huge emoluments and dividends being drawn by individuals whose lines are receiving subsidy assistance; of taking the taxpayers' money in the form of a subsidy for the operation of American ships and, at the same time, operating foreign flag vessels in competition with other American flag subsidized lines; of subsidized lines favoring the hiring of foreigners on our ships to the exclusion of American youth. No brief is held for shipping companies which have failed to meet their government obligations while, at the same time, paying unreasonable salaries, unwarranted bonuses and fees, and extravagant expenses to officers and others for the performance of services. But it is felt that in tarring the entire industry with the same brush, the Senator oversteps the rules of fair play.

● Necessity for More Ships

The industry is in agreement, on the whole, with the

S. S. Arcwear Trials

By J. W. Stewart

Senator's proposed recommendations. Every American shipowner must agree with the Senator that ship construction since the adoption of the Merchant Marine Act of 1928 has not been upon a sufficient scale to provide the country with the tonnage required for an adequate American Merchant Marine; that the requirements of mail contracts in the main fall far short of perpetuating American shipping upon the trade routes of the world. Every shipowner obtaining a mail contract has recognized the fact that he must, somewhere, find the means to construct additional tonnage above and beyond these requirements, if only to replace existing tonnage which, already obsolete, cannot last indefinitely. But shipping, wholly dependent upon other industries for its livelihood, has been granted no exemption from economic conditions applying throughout the world for the past four years. In truth, shipping has been harder hit than most other important industries.

But if Senator Black persists in his presentation of misleading statements, he cannot help but alienate the support of those who are in sympathy with his objectives, and he cannot do otherwise than weaken the case he has been building up for the greater part of a year. No matter how worthy the cause to which he has dedicated his efforts, he thus lays his motive open to serious imputation. A well known individual, manager of a foreign steamship company, has made the statement that the Black Committee investigation has done more to help foreign shipping than anything that has happened in a decade.

The Senator's radio address was one of several regular weekly programs conducted by the National Radio Forum. In justice to the American Merchant Marine, the sponsors of this program should arrange for an answer by some one not associated with any shipping company, but one who knows the subject from an economic and academic viewpoint—such as, for example, the Rev. Edmund A. Walsh of Georgetown University.

The syndicated newspaper article referred to earlier in this discussion says that in Washington "Senator Black is rapidly becoming the Hero of the Hill". Americans interested in the constructive upbuilding of American shipping will undoubtedly be glad to extend his territory and make the Senator the Hero of the American Merchant Marine if he will show them how to increase the percentage of American goods carried in American bottoms, how to provide for the replacement of ships already obsolete and soon to be worn out, and how to keep the American flag upon the seas in the face of competition of foreign ships which cost considerably less to build, less to operate, and which receive approximately twice as much patronage, encouragement and support from American passengers, importers and exporters.

While they may not approve of his methods, those who are genuinely interested in the upbuilding of the American Merchant Marine will accord Senator Black and his committee the credit it deserves, for its efforts to eliminate any condition which may exist detrimental to American shipping.

Heartily do all patriotic Americans concur in the closing words of Senator Black's address: "Our flag must remain on the seas!"

Loaded trials of Sir Joseph W. Isherwood's steamer Arcwear, described and depicted in Pacific Marine Review last month, which is the first of three tramp ships built to the Arcform Design of hull, took place January 22 on the Admiralty course at Polperro, Falmouth. Weather conditions were favorable.

The Arcwear left Immingham on the night of January 19, having loaded there 5586 tons of cargo coal for Buenos Aires and having 1100 tons of bunker coal, which had been loaded in the Tyne. The total deadweight, including water and stores, was 6850 tons. She reached Plymouth early morning, January 22, and on the trip of 301 miles her speed worked out at 11.15 knots. Average indicated horsepower was 1417, with an average revolutions per minute of 64.44; coal consumption amounted to twenty tons, which is equivalent to 1.32 pounds per IHP per hour for all purposes. The displacement of the vessel was 9085 tons, and her mean draught 22 feet 2 inches. The vessel displayed excellent steering qualities during her trip to Plymouth, and weather conditions were good.

● Results of Trials

The following are the official results of eight runs over the measured mile:

- First run: 1968 IHP, 12.12 knots, 72.5 revolutions.
- Second run: 1984 IHP, 12.08 knots, 72.4 revolutions.
- Third run: 1661 IHP, 11.5 knots, 68.5 revolutions.
- Fourth run: 1704 IHP, 11.39 knots, 68.6 revolutions.
- Fifth run: 1364 IHP, 10.67 knots, 63.0 revolutions.
- Sixth run: 1286 IHP, 10.35 knots, 62.2 revolutions.
- Seventh run: 968 IHP, 9.38 knots, 56.0 revolutions.
- Eighth run: 972 IHP, 9.11 knots, 55.8 revolutions.

Wind and currents were practically negligible. An observer stated that these progressive trials, run at varying revolutions from 55.8 to 72.5, showed that the IHP was constant, so that the Arcform type, unlike the generally accepted form, did not require disproportionate horsepower for extra speed.

Sir Joseph said, "Never have such results been obtained in a tramp ship. We have arranged for a speed of 11 knots on her passage to South America and if this can be done on a consumption of 18 tons per 24 hours, as he firmly believes it can from the performance just completed from Immingham to Plymouth, tramp shipping is going to be revolutionized. This, he said, has not been done on specially selected Welsh coal but on best Tyne coal."

The coal consumption is stated at 1.32 pounds per IHP; that is, on the run from Immingham to Plymouth, this was only with partial superheat, which gives a saving with a full degree of superheat of round about ten per cent and equals 1.2 pounds per IHP.

She has sufficient coal for the round voyage.

The Arcwear is fitted with Isherwood steel hatchway covers, the efficiency of which was demonstrated today. The ship has excellent accommodation for officers and crew, while the engine room is particularly well ventilated, and there is an up-to-date wireless equipment supplied by the Marine Electric Equipment Company, Ltd.

New Cruiser U.S.S. San Francisco

Mare Island Navy Yard Completes and Commissions 10,000 ton Heavy Class Cruiser. Forty-three years ago first Cruiser San Francisco was accepted there.

On the morning of February 10 before a large gathering of political, military, social, and business notables, the new cruiser, U.S.S. San Francisco, just completed at Mare Island Navy Yard, was there formally placed in commission. This cruiser will now go on a "shake-down" cruise, and will later report for exhaustive sea trials during which every item of her equipment will be thoroughly tested before final acceptance.

U.S.S. San Francisco was authorized for construction at Mare Island on October 11, 1930. Her keel was laid on September 9, 1931, and she was launched on March 9, 1933. She was built completely by Mare Island Navy Yard, including the gun turrets, and excepting certain parts of the machinery installation.

She is one of eighteen vessels of the 10,000 ton displacement heavy cruiser class as contemplated by the United States under the provisions of the London Treaty of 1930, and was the fifteenth of that class authorized to be built.

Her principal characteristics are:

| | |
|------------------------------|-------------------|
| Length overall | 588 feet |
| Beam, extreme | 61 feet, 8 inches |
| Draft, normal | 21 feet, 7 inches |
| Displacement, normal | 10,000 tons |
| Main battery | 9 eight-inch guns |
| Propellers | 4 |
| Total shaft horsepower | 107,000 |
| Speed | 33 knots |
| Electrical power | 1000 K.W. |

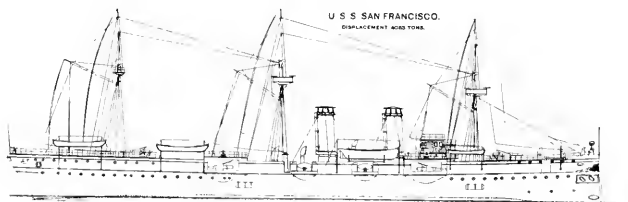
Her main propulsion plant consists of four sets of Westinghouse compound turbines, each set being connected to its propeller shaft by Westinghouse double reduction gears. Steam for this plant is supplied at 300 pounds throttle pressure by eight express type water-tube boilers. The total weight of machinery for this entire plant including all engine room auxiliaries is less than 30 pounds per shaft horsepower. The machinery occupies a space less than 200 feet long and 52 feet wide.

Much thought has been expended by naval designers on the construction of the hulls of these cruisers in order to have them strong enough to carry the desired weights of guns and armor, and yet be light enough to come under the 10,000 tons displacement limit set by the London treaty. The design involves much use of high tensile steels, aluminum alloys, and welded joints.

Altogether this new cruiser, U.S.S. San Francisco, presents a very business-like appearance with long rakish stream lines and a dangerously efficient looking battery. She bears a worthy name, and will, no doubt, acquit herself handsomely if given an opportunity.

She is the second cruiser of this name to be commissioned at Mare Island Navy Yard. The first vessel so named was authorized by Congress on March 3, 1887. Contract for her construction was signed October 26, 1887, by the Union Iron Works, San Francisco. Her keel was laid August 14, 1888. She was launched October 26, 1889, and accepted October 3, 1890. On her trials she made a top speed of 19 $\frac{3}{4}$ knots which established her the fastest ship then in the United States Navy. She was commissioned at Mare Island, November 15, 1890. Forty-three years ago Mare Island, then the only Navy yard on the Pacific Coast, was a rather primitive plant. They were still—believe it or not—using ox teams to move materials in the yard and to warp ships into dry-dock.

Today, Mare Island Navy Yard is a progressive, up-to-date plant, second to no navy yard on earth in the quality of its output and in the variety and efficiency of its ship and yard facilities and equipment. Its liberal conditions of employment and generous provisions for vacations have gradually drawn into this yard many of the best California craftsmen in ship construction and ship machinery lines. As a result we see the demonstrated ability of this yard to turn out complete such trim craft as this new cruiser, San Francisco, the battleship, California, and many others.



The cruiser San Francisco of the gay nineties was a very trim little ship with her three masts and her schooner rig. Her reciprocating steam engines were among the last of the old horizontal triple type. Some steam schooner!



The new heavy class 10,000 ton displacement cruiser U.S.S. San Francisco, here shown at the outfitting dock Mare Island Navy Yard, is a trim rakish stream-lined craft of ultra modern design.

Principal characteristics of the first U.S.S. San Francisco were:

| | |
|-------------------------------------|--------------------|
| Length overall | 324 feet, 6 inches |
| Length between perpendiculars | 310 feet |
| Beam, water line | 49 feet, 2 inches |
| Draft, mean | 18 feet, 9 inches |
| Normal displacement | 4083 tons |
| Full load displacement | 4583 tons |
| Speed | 19.75 knots |
| Propellers | 2 |
| Indicated horsepower | 9761 total |
| Electric generated power | 96 kilowatts |

Her propulsion equipment consisted of two horizontal triple expansion engines with cylinder diameters 42 inches, 60 inches and 94 inches, and a 36-inch stroke, each directly connected to its propeller shaft. Steam for these engines and for the steam auxiliaries was supplied by eight Babcock and Wilcox watertube boilers. This power plant weighed more than 185 pounds per indicated horsepower.

It is interesting to know that the ram and other cast

steel parts were cast in San Francisco at the old Pacific Rolling Mills. This ram casting weighed 13,000 pounds after trimming, and it and the other steel castings made here were of such high quality as to call forth notable praise from the Navy department. Great things in engineering and construction were done in San Francisco plants in those days.

U.S.S. Cruiser San Francisco of 1890 had a long and honorable career serving in two wars and being finally de-commissioned in 1921. She did especially noteworthy service as a mine layer in the North Sea during the World War. Here's to her name-sake, the new U.S.S. San Francisco; may she also have a long and interesting life in naval service.

Correspondence

(Continued from Page 67)

view of the fact that there have been for the last three years, and are now, so many thousands of merchant officers out of work. Is it just that a man who has spent the better part of his life at sea and now cannot find the merest subsistence on shore, should remain idle while his brother of the navy receives double pay teaching that merchant officer's successors?

It is high time that the American merchant officer should wake up, show more pride in his profession, and proclaim his independence from navy patronage. He should go hand and hand with his brother of the navy, but should certainly not be led by him. The merchant officer should be proud of his profession *per se* and not, as is so often the case, tag his name with "Lieutenant U. S. Naval Reserve" and forget to mention that he holds a chief officers' certificate in the American merchant marine.

Captain Frank Jansen.

"How are we to build up a great trade if we have not the certain and constant means of transportation upon which all profitable and useful commerce depends?"

—Woodrow Wilson.



New Marine Boiler Rules

Bureau of Navigation and Steamship Inspection Issue Revision of Rules I and II

In order that it may receive the comments, suggestions and constructive criticism of the Marine industry, the Bureau of Navigation and Steamboat Inspection has issued a printed book containing the tentative proposed revision of Rules I and II of the general rules and regulations. These two rules cover the material, design, construction and inspection of marine boilers and pressure vessels.

The movement to revise its Boiler Rules was initiated by this Bureau in 1928. A preliminary draft was prepared, covering the material, design, construction and inspection of marine boilers and pressure vessels. This draft was released to interested parties in 1929 and comments were invited. The consensus of opinion on this draft was very favorable. However, in order that all the various interests connected with the marine industry might be represented, a committee of eminent engineers known as the Committee to Coordinate Marine Boiler Rules was organized to prepare the final draft.

The personnel and affiliations of this committee are:

W. M. McFarland, Chairman, Past President Society of Naval Architects and Marine Engineers.

H. L. Seward, Secretary, Society of Naval Architects and Marine Engineers, and American Bureau of Shipbuilding.

Chas. F. Bailey, National Council of American Shipbuilders.

John L. Crone, Steamboat Inspection Service.

D. S. Jacobus, American Society of Mechanical Engineers.

B. E. Meurk, American Steamship Owners' Association.

H. C. E. Meyer, American Marine Standards Committee.

This Committee adopted the preliminary draft prepared by the Bureau as the basis on which to develop the revised draft, proceeding along the same lines which the Bureau had followed in preparing the preliminary draft, that is, making a study of all modern boiler rules, including the A.S.M.E. Boiler Construction Code, Boiler Rules of the various Classification Societies, as well as the Boiler Rules of the U. S. Navy and British Board of Trade. In addition, much thought was given to such scientific data and facts as were available on new developments, particularly the modern trend to high pressures and temperatures, such as had been successfully used in land practice for several years.

In view of the rapid strides made in the art of fusion welding, coupled with the fact that such organizations as the American Welding Society, American Society of Mechanical Engineers and the U. S. Navy had sanctioned the use of boilers and pressure vessels made by means of fusion welding, it was decided to incorporate in Rule II a complete code to govern the construction of

boilers and pressure vessels by this method. This Welding Code was developed by a sub-committee on welding in marine construction of the American Welding Society and subsequently approved by that Society and later adopted by The Committee to Coordinate Marine Boiler Rules. This Code is based on the A.S.M.E. Code for welded boilers and pressure vessels. It was also decided by the Committee to amplify its work by the addition of a modern Piping Code.

The paramount objective has been to produce a code which would be comprehensive and broad enough to include all types of boilers in marine service under the provisions of which boilers constructed of better material, better design and infinitely safer could be constructed at a reasonable cost, and with this thought in mind, the standard specifications of the American Society for Testing Materials and the American Society of Mechanical Engineers were adopted, with slight modifications, to make them workable as inspection, rather than purchasers' specifications, and to eliminate the necessity of having to order material made to special specifications, which would greatly increase the cost to the purchaser.

Inasmuch as the current Boiler Rules were in part written into statute law, it was necessary that Congress enact legislation amending certain statutes in order to permit the adoption of the new Code. Therefore, a bill drafted by the Bureau to enable the Board of Supervising Inspectors to adopt this new Code, was introduced at the last session of Congress, passed both houses unanimously, and was signed by the President on June 13, 1933. Therefore, final action by the Board of Supervising Inspectors is all that is necessary to make these Rules effective.

It is therefore highly important that all interested parties should carefully scan these rules and present any objections or suggestions as promptly as possible.

For the convenience of our readers, we are reproducing here that part of the rules which is most interesting to the shipowner.

1-18-1. Preparation of boilers for inspection. — It shall be the duty of the chief engineer to have the boilers which are to be inspected filled with water, safety valves secured by gags or clamps, tubes swept, back connections and furnace cleaned out, grate bars and bridge walls removed, and to have the water in boilers at a temperature not more than 100 degrees Fahrenheit.

1-18-2. Tests and inspection of new boilers. — (a) When a new boiler is installed in a vessel, a hydrostatic pressure equal to one and one-half times the working pressure shall be applied before the boilers are covered, and it shall be the duty of the inspector to make a careful examination of the exterior of the boiler, furnaces, back connections, tubes, and of every part that can be examined while under test, in order to satisfy himself that there are no defects in workmanship

or material, and that the boiler shows no signs of weakness under the test.

(b) After the test, the boiler shall be emptied, manhole and handhole plates removed, and, unless it is physically impossible to do so, the inspector shall enter the boiler and make a thorough examination of the interior to satisfy himself that the workmanship is good, that no defects have occurred due to the hydrostatic test, and that the boiler is safe for the maximum working pressure for which it was approved. Where it is not possible for the inspector to enter the boiler, he shall specifically state in his report the reasons for not so doing.

(c) Upon completing the inspection of a new boiler, the inspector, if fully satisfied that the boiler is built in all respects in accordance with the approved drawings or blue prints on file, and that the workmanship and material are good and the boiler safe for the working pressure for which it was approved, shall cause it to be stamped, preferably on the front head in the case of fire-tube boilers, or on the drumhead in the case of water-tube boilers, with the following inscription, which must be legible:

B. N. and S. I. No.
 T. S. (.....lbs.)
 Hydro. test (.....lbs.)
 Original W. P. (..... lbs.)
 Built by (.....)
 Steel by (.....)
 Date (.....)
 Inspector's initials (.....)

This inscription must not be obliterated during the life of the boiler. The data specified on the inscription shall be transferred to a name plate to be attached to the boiler outside of the covering, or to the uptake, which name plate must be kept clean so that it can be easily read by inspectors at any time.

1-18.3. Tests and inspection of boilers in service.—The boilers of all vessels under the jurisdiction of this bureau, and other equipment as stipulated in the succeeding subparagraphs, shall be subjected to annual tests and inspection in accordance with the following requirements.

1-18.4. Boilers and main steam pipes.—(a) At each annual inspection thereafter, boilers which can be satisfactorily examined internally, shall be subjected to a hydrostatic test equal to one and one-quarter times the maximum working pressure; types of boilers which due to design can not be satisfactorily examined internally, shall be subjected to a hydrostatic test equal to one and one-half times the maximum working pressure; also, boilers to which extensive repairs have been made, or the strength of which the inspector has any reason to doubt, shall be subjected to a hydrostatic test of one and one-half times the maximum working pressure. It shall be the duty of the inspector, whenever he deems it necessary in the interest of safety, or whenever evidence of moisture or leakage appears, to have part or all of the covering or lagging of the boiler removed so that a complete examination of the exterior parts of the boiler may be made.

(b) In applying hydrostatic pressure to boilers, inspectors shall require such arrangements to be made as will guard against main and auxiliary stop valves being

subjected at the same time to hydrostatic pressure on one side and steam pressure on the opposite side. Vessels on going out of service or laying up in winter quarters, and beginning the annual inspection, may have the hydrostatic pressure applied to boilers at any time preceding the date of the final inspection, but in no instance shall the vessel be navigated to exceed 12 months from the date of issue of the certificate of inspection without the application of the hydrostatic pressure, except as provided in section 4421, U. S. Revised Statutes.

(c) The hydrostatic test shall be witnessed by the boiler inspector, and by the hull inspector provided he is on the vessel when the test is applied. In the event that the hull inspector is not on board, the chief or first assistant engineer of the vessel shall witness the test in his place and certify to such test in the inspector's report stating the hydrostatic pressure applied in pounds per square inch.

(d) The hydrostatic test shall be applied to the main steam piping from the boiler to the throttle valve in the same ratio as applied to the boiler. If the covering of the piping is not removed, a test pressure 15 per cent in excess of the maximum working pressure shall be held on the piping for a period of ten minutes, and, if any evidence of moisture or leakage is detected, the covering shall be removed and the pipe thoroughly examined. The inspector may, however, order the covering removed at any time if he deems it necessary.

(e) It shall be the duty of the inspector to subject such parts of the boiler as stays, flues, furnaces, and such other parts of the boiler as he deems necessary to a hammer test.

(f) If the inspector has reason to believe that the boiler has deteriorated to any appreciable extent under the bottom where it rests on saddles or foundations, he shall cause the boiler to be lifted to such position that it can be thoroughly examined.

(g) In the inspection of water-tube boilers inspectors shall make a careful examination of the ligaments between rivets and between tube holes to ascertain if any cracks have started.

(h) In the inspection of water-tube boilers, the inspector shall examine, in addition to the pressure parts, the casing, brickwork, and baffles, and, if any part be found in bad condition, he shall require such repairs or renewals as may be necessary.

(i) Inspectors shall examine the edges of manholes or other openings and the edges of lap-riveted joints to ascertain if any cracks have started in the plate.

(j) Inspectors may require a boiler to be drilled to determine the actual thickness at any time if they are doubtful as to its safety. However, after a boiler shall have been installed for ten years, it shall be the duty of the inspector, at the first annual inspection thereafter, and at such subsequent periods as may be deemed necessary, to cause the boiler to be drilled at or near the water line and bottom, and at such other places as he may deem necessary, for the purpose of gaging the shell to determine if it has deteriorated. If the thickness found by actual measurement is less than the original thickness, the boiler shall be recalculated and the maximum allowable working pressure shall be based on the least thickness found.

Pacific Marine Book Reviews

*Realizing that Many a Mariner—Ship Operator—Ship Owner or Engineer
like Chaucer's Clerk "Would liefer have at his beddes head,
Twenty bookes clad in black or red"*

SHIPS AND SOUTH AFRICA by Marischal Murray. 360 pages of text, 332 illustrations, bound in blue cloth with gold stampings, published by Oxford University Press, New York, price \$14.00.

An excellent piece of work in recording the history of steam navigation to South Africa, this narrative provides a complete survey of developments on the Cape route from 1825 down to the present time.

Episodes of shipwreck, fire, disaster, and piracy; effects on shipping of war and trade developments; pioneering efforts of individuals and of companies; and establishment of famous steamship lines are all described in a simple, straight-forward style that makes the book very pleasant reading.

The text is comparatively free from interspersed or attached notes, such tabular information as is necessary to make a complete reference work being carried in an appendix. The value of the volume for reference purposes is greatly augmented by very complete subject and ship name indexes.

Every one who is interested in the history of steam navigation should own a copy of "Ships and South Africa."

THE SUEZ CANAL—ITS PAST, PRESENT AND FUTURE. By Lt.-Col. Sir Arnold T. Wilson. 215 pages of excellent type on fine quality heavy paper. Bound in dark blue buckram with gold stampings. Published by Oxford University Press, New York. Price \$6.00.

The first book written on the subject of the "key to India" by an Englishman, for nearly sixty years, this volume sets forth in a vivid and authoritative manner the history of the Suez canal from its inception until the present day. The author's aim is to throw light and focus public opinion upon a problem which

"is very complicated and requires to be elucidated". He does this in a straight-forward, readable manner. Although the book is primarily a scholarly study, it is so presented that a reader in no way interested in the Canal, itself, would enjoy its history as here narrated.

Each chapter is concluded with a lengthy bibliography, and the entire volume is replete with tables, graphs, and documents. Among the latter are the Text of the Draft Convention, the Text of the Second Concession, Statutes of the Suez Canal Company, and Suez Canal Rules of Navigation (1933).

The parts played by Lord Stratford de Redcliffe, de Lesseps, Gladstone, Said Pasha, Disraeli, and others in the history of the canal and its construction are amply and fairly dealt with.

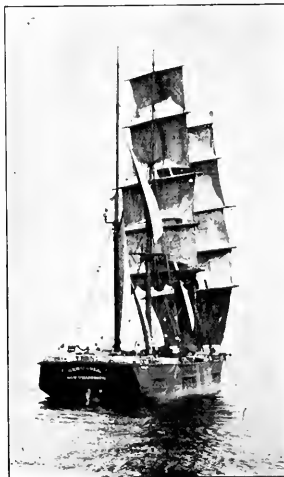
A complete index and a map of the Suez Canal and Canal Zone add to the usefulness of the volume as a textbook or a book of reference.

TERMITES AND TERMITE CONTROL. A report to the Termite Investigations Committee by Chas. A. Kofoid (editor in chief), S. F. Light, A. C. Horner, Merle Randall, W. B. Herms and Earl E. Bowe, 768 pages, 182 figures and illustrations bound in maroon cloth with gold stampings, published by the University of California Press, Berkeley, Calif. Price \$5.00.

This excellent volume is a notable example of what can be accomplished when scientists, engineers, and business men cooperate in an effort to solve a problem involving public good. Termites and Termite Control is a book which no architect, engineer, contractor, or building inspector can afford to be without, since it treats the termite problem more exhaustively than any scientific treatise hitherto published, yet it is written in simple, non-technical language that the layman can readily understand.

Thousands of dollars have been expended upon the necessary research and the preparation of the material of this volume, but none of this expense has been added to the publication cost. Thus it is possible to sell the book at this reasonable price.

The destructive habits of the termites are faithfully described, including the habits of eleven newly discovered species in California, and the question of effective means for the extermination and control of these insects is thoroughly discussed for the benefit of anyone using wood for building purposes in temperate and tropical countries. The immense amount of human experience and patience and labor that has gone into the gathering of the material for Termites and Termite Control will be immediately apparent to anyone who glances through the Table of Contents. This is probably the most important sin-



gle contribution in the field of construction engineering in recent years.

This book will be of great value also to biologists, entomologists, teachers, and all others interested in the remarkable colonial life of termites.

"THE MOTOR SHIP REFERENCE BOOK FOR 1934" (Temple Press, Ltd., London, 5s. net) is the tenth annual edition of this manual. The progress of the motor ship since the first publication may be gauged by the fact that of the vessels now under construction, at least two-thirds are oil-engined craft.

The 1934 edition has been fully revised, and considerable additions have been made. Included in it are particulars of every motorship of over 2,000 tons gross, and these details are complete to January 1, 1934. It includes descriptions and illustrations of every type of large marine Diesel engine constructed and a summary of progress and development during 1933.

Fiction

MAD HATTER'S VILLAGE by Mary Cavendish Gore. 306 pages, bound in black and gray modernist design. Published by Alfred H. King, price \$2.00.

"Mad Hatter's Village" is first of all a good story. You will enjoy it from the first page to the last, simply because it sets you down in a "mad" artistic-literary colony, gives you a group of interesting and unusual people, flavors the whole thing with the salt of seaspray and the sun on warm sand, and keeps you wondering what is going to happen next. The conclusion is a complete surprise. Cosmo is a thoroughly likeable individual, and so is "the waxwork" with her terrible twins. Ted, who mistrusts the morals and intentions of all women except his domestic Betty; the meddlesome little Dean who just must run everybody's business but his own; Bliss, who is always "mooching" a meal or a smoke; and Rex Fowler, the blatant columnist are worth knowing, too. Barbara and Elspeth—Cosmo's X, are the least interesting characters, but as their part is minor they do not detract from the charm of the story which couldn't be beat for whiling away an afternoon or an evening



when you want to just lie back and enjoy yourself.

PARCHED EARTH by Arnold B. Armstrong. 430 pages, bound in tan and orange cloth. Published by MacMillan Company, New York, price \$2.50.

Here is another contribution to the current literary habit of washing dirty linen in public. Told in forceful, clear cut diction, we have the story of a typical small central California town from the days of the Indians down to the approximate present. The sarcastic treatment is excellent, and the narrative adequate. You will read it with interest to the end, but it will leave you with a dirty taste in your mouth.

SEA LEVEL by Anne Parrish. 373 pages, bound in sea-blue cloth with dark lettering. Published by Harper and Brothers, New York. Price \$2.50.

Here is an unusually vivid presentation of a great many people who will live in the reader's mind long after he has laid down this skillfully told story of the Round-the-World Cruise of the "S. S. Aurora". It takes an artist to present literally dozens of characters against a kaleidoscopic background and make the little laughable, loveable, pitiable personal characteristics of each stand out starkly from the rest; to make names, and references to the past history of each, bring to mind the particular person or group of persons, at the moment on the stage of the author's narrative. Miss Parrish does this with

consummate skill. We worship Mary Mallory's beauty with Alec Reade, while we sympathize with Mary's own attempts to find happiness in this puzzling world; we feel the hurt of Madame Leonora Martindale's realization that she is no longer a great actress, but only a rather pompous has-been; we can see Lizbie Adams, her nose red from crying for her mother, and understand her gauche attempts to adjust herself; we can't help feeling disgusted with Pal Turner and Hi Pleditch, yet their essential kindness evokes resentment against the snobbish Crowleys and their like, who so obviously snub all clumsy attempts at friendliness. The book is much too broad a canvas to be treated in a brief review. It should be read and savored and remembered as a very real contribution to present day literature which attempts to interpret to us our faults, foibles and moments of greatness.

LIVERPOOL JARGE: Repeal Edition, by Halliday Witherspoon with a preface by Philip Hale. Copyright, 1933 by Square Rigger Co., Boston, Mass. Ten yarns. "Made up after those crustaceans which go For'ards Backwards", flamboyantly bound in vermilion with appropriate silhouettes.

Jarge is a sea-faring gentleman with a glass eye who in the company of John Savage Shagbelion, another mariner of questionable fame, experiences a series of delirious adventures on land and sea, each of which ends with the hero's death. This untoward event in no way prevents that hardy salt from reappearing hale and hearty and muchly tattooed to reel through the succeeding narrative. An excellent bed-time story for bibulous mariners and others of like tastes.

CITY HARVEST by Margaret Cheney Dawson. 213 pages, bound in gray with rose markings. Published by MacMillan Company, price \$2.00.

In "City Harvest", Mrs. Dawson does not attempt to tell a story, but rather to paint a picture, and a very muddled, messy daub results. Too much paint, smeared across an already over-done canvas, leaves the observer feeling that there must be a great many things worth seeing in the study, if it were possible to distinguish anything.

All of which is very incoherent, (Please turn to Page 85)



Marine Equipment

LIGHT WEIGHT DIESEL ~ REMARKABLE FUMIGANT
TURBO BLOWERS ~ NOVEL DIESEL EXHIBIT

Fairbanks Morse Introduces New Light Weight High Speed Diesel

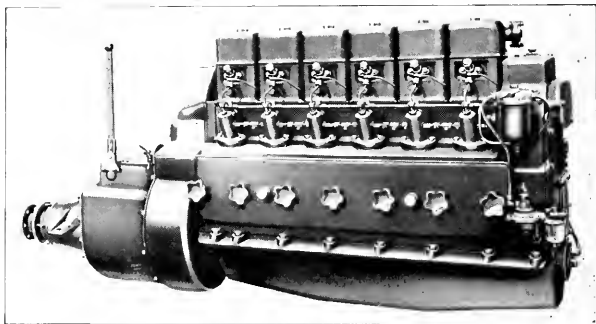
To meet an insistent demand on the part of many users for operating economy in comparatively small primary power equipment, Fairbanks, Morse & Co. have developed and recently placed on the market a light-weight four-cycle Diesel engine that provides an adequate capacity-weight ratio and at the same time maintains the world-wide reputation of Fairbanks-Morse Diesel engines for reliability and long sustained performance ability.

This engine is designed for both marine and mobile equipment as well as for stationary service and is available in sizes of one, two, three, four and six cylinders with capacities of 10, 20, 30, 40 and 60 brake horsepower.

The cylinder size is 4 1/4 inches by 6 inches and the normal operating speed, 1200 revolutions per minute; the displacement is 85 cubic inches per cylinder and 5370 cubic inches per minute per horsepower at rated speed.

This line of engines offers power equipment for the smaller loads that is simple and easy to install, is easy to start, economical to operate and exceedingly flexible as to control. The engine, as shown in the accompanying illustration is exceptionally compact and clean cut and is designed with that sturdiness and special service features that have been found from long experience to be so essential to the successful operation of engines for both marine and stationary service.

All the engines in the series are of the vertical type with airless injection of fuel and embody the lat-



The new four-cycle 10-horsepower per cylinder Fairbanks Morse Diesel is a neat sturdy dependable power plant.

est developments in light-weight full diesel construction.

Cylinders are cast enbloc with adequate reinforcing to obtain rigidity and permanent alignment of the crankshaft bearings and cylinder sleeves. Main bearings are embedded in a rigid lower base which is fitted with cover plates to facilitate service and inspection. Removable cylinder liners insure minimum maintenance expense.

Cylinder heads are thoroughly water jacketed with passages carefully designed to insure even cooling and the combustion arrangements are for quiet operation and with clean exhaust over the entire load and speed range. This construction, combined with injection timing control results in easy starting at low temperatures. Lubrication is force feed throughout, and main bearings are large to give low bearing pressures.

Intake and exhaust valves are made of a special alloy and operated by push rods from the camshaft. The single camshaft, totally enclosed in the engine crankcase and pressure lubricated, also actuates the fuel injection valves. Cooling water is circulated by a reciprocating

plunger type pump driven from this camshaft at half engine speed. All pump connections are readily accessible from the outside.

Individual mechanical injection type fuel pumps with fixed length of stroke and variable inlet cut off are mounted directly beside each cylinder with short, equal length, connections to the nozzles. Nozzles are of the single orifice type and are easily removed for inspection. A flyball type governor of special design permits wide speed range with accurate control of all intermediate speeds.

The one, two and three cylinder engines are offered as marine units equipped with a single lever sliding transmission giving full engine speed ahead and full engine speed in reverse as standard equipment. The four, five and six cylinder units are offered with reverse and reduction gears as standard equipment.

The single cylinder engine can be readily started by hand cranking. On the two and three cylinder units hand cranking is the standard starting arrangement with 24-volt electric starting equipment offered as special equipment. The four,

five and six cylinder units are fitted with a complete electric starting system as standard equipment.

For electric generating service, these engines are available equipped with either alternating current or direct-current generators in capacities of 6 to 40 kilowatts.

This line of engine combining high speed and light-weight, with sturdy construction that insures reliable operation, long life, and low maintenance cost, will be found especially applicable to all installations requiring economical and reliable power in comparatively small capacities.

A Remarkable Non-Poisonous New Fumigant

A new chemical substance, known as malium, which will kill insects and their eggs, but which in ordinary concentrations is entirely harmless to human beings, has been perfected by the Michigan Alkali Co., New York City, the largest manufacturer of dryice in the world and one of the leading chemical manufacturing companies in this country. The substance is expected to find wide use in the fumigation of grain elevators, cereal mills, candy factories and other food establishments where destructive insect pests cause millions of dollars of damage annually. Malium will also be used, it is said, in the fumigation of ships, hotels, restaurants, and homes for both food eating insects and household pests. Being non-toxic to human beings, it can be used safely for insect fumigation under any conditions. It is used without heating or the addition of other chemicals.

Malium is a colorless, volatile liquid, with scarcely any odor, thus differing from most fumigating substances at the present time, which have undesirable odors. The new fumigant is made from a combination of carbon dioxide with newly developed synthetic chemicals, and is the result of four years of research by the experts of the Michigan Alkali Co.

Besides being odorless, tasteless and colorless to human beings, it leaves no residual odor or taste in foodstuffs. Previously many food establishments could not be fumi-

gated to prevent the development of worms and insects. In candy factories, for example, it will now be possible to keep fruits, nuts, chocolate, etc., free from worms. The fruit or nuts may come into the factory clean, but somewhere in the journey from nature to the factory insects may deposit eggs on the foodstuffs. The eggs, invisible to the human eye, may quickly develop into worms.

"Malium is one of the big chemical achievements of the depression," Lewis C. Chamberlin, manager of the solid carbon dioxide division of the Michigan Alkali Co., said in announcing the new fumigant. "It is a distinct step in progress in the prevention of waste. According to estimates of the U. S. Department of Agriculture, more than \$200,000,000 of damage annually is done by insects which eat food and clothing, to say nothing of the discomfort caused by household insect pests and the loss of good will of customers. Because of its unique properties, malium can be used without danger or discomfort to human beings in the war against insect pests."

Trade Literature

"The heart of the refrigeration system is the compressor." With this slogan the Worthington Pump and Machinery Corporation, Harrison, New Jersey, announces a new 16-page brochure on the Worthington compressors equipped with feather valves for refrigeration. The booklet, generously illustrated, is printed on fine quality coated paper and contains charts, diagrams, photographs, and text of interest to all connected with the refrigeration industry. A copy may be obtained free by writing Pacific Marine Review, or direct to the Worthington Corporation.

Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pennsylvania, are offering an interesting folder describing their Nofuze circuit protection for marine service. The leaflet describes the different types of breakers and lighting panelboards, as well as engine room switchboards. A cross-section photograph of the breaker shows the make-up and operation of the mechanism. A copy may be obtained from Westinghouse or by writing Pacific Marine Review.

A four-color leaflet, entitled "120 Cubic Feet Displacement Worthington Portable Compressor", has been issued by the Worthington Pump and Machinery Corporation, Harrison, N. J., containing illustrations of the many uses of the various mountings in which the Worthington vertical duplex compressor may be obtained. Detailed description of such features as feather valves, full force-feed lubrication, crankshaft, cooling system, automotive type pistons, unloader plungers, etc. accompanies the illustrations. Copies of the folder may be obtained free from Pacific Marine Review or the Worthington Corporation.

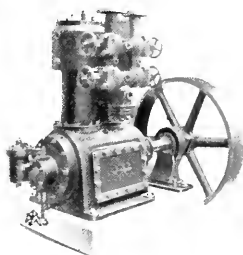
"From One Engineer to Another" is the title of a twelve-page folder in which the Brown Instrument Co., Philadelphia, Pa., illustrate and explain in detail the working of the Brown Electric Flow Meter. The folder is comprehensive in itself, and offers, to those who would like further information two booklets—"Power Plant Instrument Data Book," and "Brown Electric Flow Meters"—either of which may be obtained from Pacific Marine Review or from the Brown Instrument Company free of charge.

Bulletin 60-B10, descriptive of Cycloidal rotary pumps, has just been issued by the Roots-Connorsville Blower Corp. of Connorsville, Indiana. These pumps are built on the two-impeller principle, with two and three-lobe impellers.

Cycloidal rotary pumps are built for heavy duty service such as handling viscous liquids or producing high vacuum, handling air and liquids simultaneously. Such design and sturdy construction are emphasized as desirable features.

Special attention is directed to the Type R pump, a comparatively recent development of the Cycloidal design. In this pump, the cylinder is made integral with the base, with inlet at either side and discharge at the top. Large diameter shafts are supported on four anti-friction bearings. Timing gears are machined from forced steel blanks, and heat-treated. Bearings and gears are protected from contact with the fluid being handled by improved stuffing boxes.

Any standard driving arrangement is available, and illustrations show single pulley, direct-coupled, and V-belt pumps, operated by gasoline engine and electric motor.



New Series of Refrigeration Compressors

An improved series of Two-Cylinder Vertical Compressors for Ammonia and Freon Service, in capacities ranging from 1 ton to 100 tons of refrigeration, is being introduced by Worthington Pump and Machinery Corporation.

In accordance with the most modern development in compressor manufacture, this line incorporates frictionless bearings where applicable, tapered rollers being used for the main bearings and a straight roller type for the outboard bearing.

Pressure lubrication is furnished to the connecting rod bearings in the larger units through rifle-drilled shaft and connecting rods, the oil passing through a rotary type disc filter located on the discharge side of a positive gear pump.

This gear pump is simple in construction and capable of discharging oil regardless of the rotational direction of the compressor. No ball checks are involved in the design of this element, insuring the full pump capacity being delivered at all times.

The suction valve is located in the top of the piston and the discharge valve is an easily removable safety head, this arrangement providing maximum valve areas with consequent low brake horsepower per ton of refrigeration. Exhaustive tests have demonstrated remarkable efficiencies and endurance even at speeds higher than at present contemplated.

Main stop valves, pump-out, safety valves and starting by-pass are incorporated in a self-contained manifold designed to harmonize with the general appearance of the compressor and furnished as part of the complete unit.

Drive can be either direct connection with synchronous motor, or through Worthington Multi-V-Drive to motor.

Literature containing complete data on these units is available on request.

Winton at Motor Boat Show

The new Winton diesel unit displayed at the 1934 Motor Boat Show, Grand Central Palace, New York City, January 19-27, presents an entirely novel conception of the modern power plant, and, quite naturally, was closely inspected by thousands of visitors at the show. Supplementing the interest created by the engineering and structural features was the significant announcement of the builders that units embodying these new characteristics will be built not only for marine, industrial and municipal power plants, but also for high speed railroad passenger trains as well as for many diversified uses where weight and size heretofore limited the use of diesel power.

The engine shown at the Motor Boat Show will shortly be installed in the Burlington Railroad's new high-speed passenger train as described in *Pacific Marine Review* for February. Engineers from the United States Steel Corporation, General Motors Corporation, Winton Engine Corporation, and the Burlington Railroad are scrutinizing every step of the development. The successful application of Diesel power to railroad service reflects the tremendous advantage now enjoyed by Winton in its field due to

the close cooperation of General Motors Research Laboratories. With the engineering resources of its great organization always available for research and development work General Motors has definitely turned its attention to the future development of the diesel type engine. Here in this new line of Winton diesel engines are embodied the results of their efforts up to date.

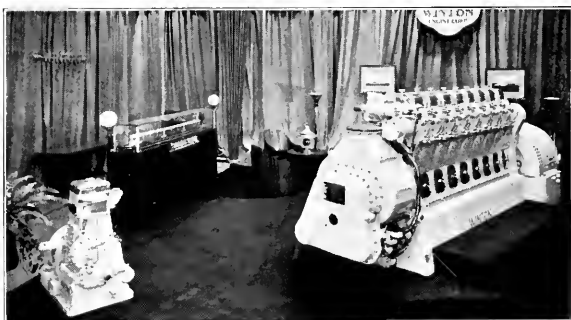
Cardinal features of the new units are welded steel type construction, the new uniflow two-cycle principal, and the patented unit injection system, a new and exclusive feature. No diesel engine ever built has heretofore embodied all of these three features. The line will comprise straight sixes and eights, and V-type twelves and sixteens. Sizes will range up to 3000 horsepower.

Trade Note

Westinghouse Promotions. Following a recent meeting of the board of directors of the Westinghouse Electric and Manufacturing Company in New York, A. W. Robertson announced the election of A. E. Allen as Vice-President. Mr. Allen will have charge of the Merchandising Division which is now established as a separate operation distinct from other divisions of the company. He will have charge of all sales, manufacturing and engineering activities of this new division.

The merchandising division as now constituted will include all products for which the main outlet is through merchandising channels.

Mr. Allen has been with the Westinghouse Company since 1902.



Matson-Lassco

South Sea Cruises
Arouse Wanderlust

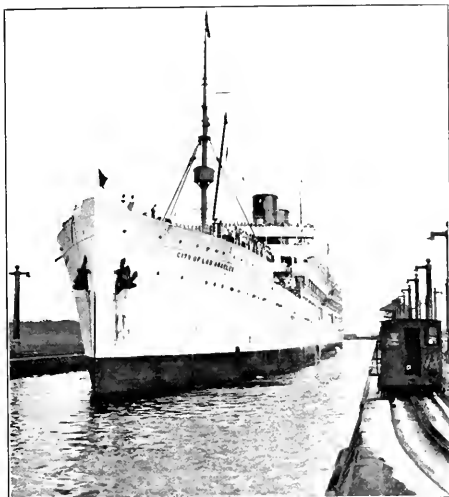
Haunting dreams of the far South Seas are proving irresistible to Americans. They want to go; they have gone; and now they can go again!

"While the first South Seas Exploration Cruise of the Matson Line—Lassco Line is still in tropic waters, the demand from the left-behinds has grown so acute that the ship must sail again", state Matson officials. "The City of Los Angeles" will, immediately after her return to Los Angeles, February 24, proceed to San Francisco to prepare for the second 1934 Exploration Cruise.

On this second South Sea cruise, the liner will leave San Francisco June 26, Los Angeles the 27th, and follow down a routing of romantic ports of the Marquesas, Society, Cook, and Tonga Islands to New Caledonia; thence turn north to Fiji, Samoa and Hawaii; completing the cruise via Los Angeles (August 8) to San Francisco on August 9 after forty-four days in Pacific waters and Island realms.

The cruise has been particularly scheduled to fit in with school and mid-summer business vacations. Prospects, officials state, are that it will be as successful from the booking standpoint as was the remarkably successful First Cruise.

Popular
cruising
liner
City of
Los Angeles
in Panama
Canal.



Book Reviews

(Continued from Page 81)

but so is Mrs. Dawson's book. For example:

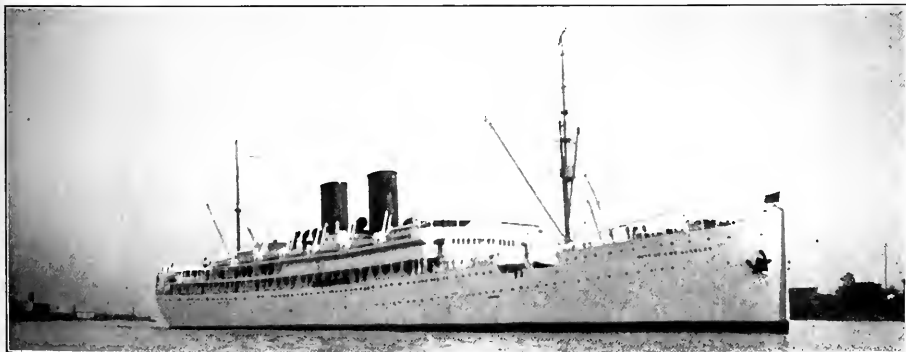
"A liverish yellow background pulsing with light, and all manner of shapes sailing across it, triangles and grey squiggles like the things you see against the sky when your eyes are tired, she thought, and jelly-colored balls, whizzing across the screen colliding into arguments uprushing together in laughter, spinning friskily through flirtations."

New Year's Eve 1932 is the time; New York is the background; an

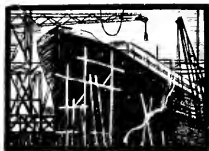
architect, his artistic wife and their friends are the characters.

Trade Note

Firm name changed. The Paper and Textile Machinery Company of Sandusky, Ohio, a firm long famous for the production of heavy centrifugally cast brass and bronze tubing, has recently changed its corporate name to the Sandusky Foundry and Machine Company at the same address. Tail shafts on many ships of the United States Navy and the United States Merchant Marine are protected by Sandusky seamless bronze sleeves shrunk on to the shaft.



The Matson-Lassco cruising liner City of Los Angeles is a very comfortable and very popular vessel on South Sea cruises.



American Shipbuilding

The following Report Covers the Shipbuilding Work in Progress at the Leading Shipyards of the United States as of February 1, 1934

Pacific Coast

BERG SHIPBUILDING CO.
foot of 26th Ave., N. W.
Seattle, Wash.

NEW CONSTRUCTION: The building of the lighthouse tender **Hemlock** for the United States Bureau of Lighthouses to be used in the Alaska service. This is a twin screw, steel steamer 174' 6" in length; TE engines, 1000 H.P., WT boilers. Keel was laid April 27, 1933. Launched Jan. 20, 1934. Delivery, no date set. Lengthened M.S. **Discoverer** from 76' to 90'. Raised decks on purse seiners **Coolidge** and **Newport II**.

BETHLEHEM SHIPBUILDING CORPORATION, LTD.
(Union Plant)
San Francisco

DRYDOCK, PAINT, MISCELLANEOUS: S.S. Argyll, S.S. W. S. Miller, Tug F. A. Douty, S.S. Lena Luckenbach, S.S. Mauna Ala, S.S. Hanley, S.S. Lake Galewood, S.S. President Johnson, S.S. Admiral Gove, S.S. Chiriqui, S.S. Malolo, S.S. Golden Cross, S.S. Mannganni, S.S. Point Sur, S.S. Point Ancha, S.S. President Hayes, S.S. J. C. Fitzsimmons, S.S. Lurline, S.S. Antigua, S.S. President Hoover, S.S. Texmar, S.S. President Taft, S.O.Co. Launch Despatch, S.S. Admiral Cole, S.S. Maunalei, S.S. Tondeleyo, S.S. Talamanca, S.S. Sage Brush, S.S. President Lincoln, M.S. Jutlandia, S.S.

Yale, S.S. West Mahwah, U.S. Dredge Sacramento, S.S. President Pierce, S.S. President Harrison, Tug Sea Lion.

ENGINE AND MACHINERY REPAIRS: S.S. Calmar, S.S. Wm. A. McKenney, S.S. H. F. Alexander.

GENERAL ENGINEERING AND DRYDOCK CO.

Foot of Fifth Avenue
Oakland, Calif.

DRYDOCK, PAINT, MISCELLANEOUS: Lightship No. 76, S.S. Alaska Standard, S.S. Cottoncova, S.S. Solano, S.S. Sutter, S.E. R. J. Hanna, S.S. Frank H. Buck, M.J. Frank Lynch, S.S. Despatch No. 4, Mach. Shop Barge (Std. Oil Co.)

LAKE UNION DRYDOCK & MACHINE WORKS
Seattle, Wash.

NEW CONSTRUCTION: Hull No. 102, no name, U.S. Coast Guard patrol boat; estimated keel laying, March, 1934; estimated launching, April 15, 1934; estimated delivery, Sept. 20, 1934. Hull No. 103, no name, U.S. Coast Guard patrol boat; estimated keel laying, March, 1934, estimated launching, June 1, 1934; estimated delivery, October, 1934; Hull No. 104, no name, U.S. Coast Guard patrol boat; estimated keel laying, April 16, 1934; estimated launching, June 15, 1934; estimated delivery, Nov. 1, 1934; Sea Boy, tuna fisherman, for the Franco-Italian Packing Co., completed

January 8; delivery January 16, 1934.

DRYDOCK, PAINT, MISCELLANEOUS: USC & GC **Discoverer**, U. S. Army mine-planter, Major General J. Franklin Bell, tender Westdahl, Constitution, Western, North, President, Sea Bird, Resolute, Aloha, Spray, Kanaga, Pacific, Forward, Willard B., Comet and Westward.

THE LOS ANGELES SHIPBUILDING & DRY DOCK CO.
Los Angeles Harbor
San Pedro, Calif.

DRYDOCK, PAINT, MISCELLANEOUS: Associated Oil Barge No. 8, General Petroleum Barge No. 1, Tug Lebec, M.S. Molokai, Shell Oil Barge No. 2, S.S. Solana, S.S. Beaconlight, Sunset Pacific Oil Barge C-1, S.S. Point Loma, S.S. Tulsagas, S.S. Frank G. Drum, S.S. Brandywine.

ENGINE AND MACHINERY REPAIRS: S.S. Chilisco.

THE MOORE DRYDOCK CO.
Oakland, Calif.

DRYDOCK, PAINT, MISCELLANEOUS: S.S. Vacuoline, S.S. Panaman, S.S. Warwick, S.S. Texan, Haviside Barge No. 5, S.S. Tillamook, S.S. Elizabeth, S.S. Golden Hind, S.S. Silverguava, S. S. Alaskan, S.S. Willzipo, S.S. American, S.S. Eclipse, S.S. Mexican, Tug Virgil G. Bogue, S.S. Angel Island, S.S. Golden River, S.S. Virginia, S.S. Hollywood, S.S. Dakotan, M.S. Port Costa, Tug Hercules, S.S. Kohwa Maru, S.S. Kadiak, S.S. San Leandro, S.S. Willkeno, S.S. Golden Horn, S.S. R. J. Hanna, S.S. Makawao.

ENGINE AND MACHINERY REPAIRS: S.S. Soyuzpushnina.

PRINCE RUPERT DRYDOCK AND SHIPYARD
Prince Rupert, B.C.

DRYDOCK, PAINT, MISCELLANEOUS: S.S. Prince George, bottom damage forward entailing about 120,000 lbs. new steel, annual overhaul—time 35 days. S.S. Prince



Six of 27 all-welded steel barges for the transportation of bananas in shallow water, constructed by the Equitable Equipment Co., New Orleans, for shipment to Central America. Having hulls and decks fabricated of 1/8 inch steel plates they are each 60 feet long, 20 feet wide, and have a draft of 3 feet, 6 inches.

March

Rupert, put into commission to replace, Prince George.

THE PUGET SOUND NAVY YARD Bremerton, Washington

NEW CONSTRUCTION: U.S.S. *Astoria* (heavy cruiser No. 34) keel laid September 1, 1930; launched December 16, 1933; LBP 578'; Beam 60'1½"; Loaded Draft, 21'7"; geared turbine engines; B & W Express boilers; U.S.S. *Worden* (Destroyer No. 352), keel laid December 29, 1932; LBP, 334'; Beam 34'2½"; Loaded Draft, 10'10"; geared turbine engines; Yarrow type water-tube boilers; U.S.S. *Cushing* (Destroyer No. 376); LBP, 334'; Beam, 35'¾"; Loaded Draft 10'10"; geared turbine engines; express type boilers; and U.S.S. *Perkins* (Destroyer No. 377); LBP 334'; Beam, 35'¾"; Loaded Draft, 10'10"; geared turbine engines; express type boilers; building under provisions of National Industrial Recovery Act.

DRYDOCK, PAINT, MISCELLANEOUS: *Saratoga*, Arkansas, Colorado, Milwaukee, Marblehead, Houston, Detroit, Kanawha, Cheilan, Mahopac, Tatnuck, Swallow, Challenge, Wando, Arrostook, Jason, Kearsarge, Patoka, Pawtucket, Prometheus, Pyro, AS-8 (Ex-Savannah).

TODD DRYDOCKS, INC.

Harbor Island
Seattle, Wash.

DRYDOCK, PAINT, MISCELLANEOUS: S.S. President Grant, S.S. Paul Luckenbach, S.S. Andrea Luckenbach, S.S. Kentucky, S.S. Tacoma, S.S. Harry Luckenbach.

UNITED STATES NAVY YARD Mare Island, Calif.

NEW CONSTRUCTION: Building the heavy cruiser *San Francisco*, (CA-38) for United States Navy, 10,000 tons displacement; L.B.P. 578'; extreme beam 61', 10"; normal loaded draft, 21', 7"; keel laid September 9, 1931, launched March 9, 1933, estimated delivery, Feb. 10, 1934. *Smith*, U.S. torpedo boat destroyer (DD378); 340 ft. long, 35 knots speed; standard displacement, 1500 tons; estimated completion date, Feb., 1936. *Preston*, U. S. torpedo boat destroyer (DD379); 340 ft. long; 35 knots speed; standard displacement, 1500 tons; estimated completion date, May, 1936.

Atlantic, Lakes, Rivers

AMERICAN BRIDGE COMPANY
Pittsburgh, Pa.

NEW CONSTRUCTION: Repairs to 29 coal barges (175'x26' 11") for Carnegie Steel Co.; 24 delivered.

BATH IRON WORKS Bath, Maine

NEW CONSTRUCTION: Hull No. 154, *Dewey* (DD 349), torpedo boat destroyer for U.S. Navy; keel laid Dec. 16, 1932; estimated launching, May, 1934; estimated delivery, August, 1934. Hull No. 159, *Drayton* (DD 366), torpedo boat destroyer, U.S. Navy; keel laying and launching, no dates set; estimated delivery, November, 1935; Hull No. 160, *Lamson* (DD 367), torpedo boat destroyer, for U.S. Navy; keel laying and launching, no dates set; estimated delivery, January, 1936. Speed loaded for all three of the above, 36½ knots. Standard displacement 1500 tons, turbine engines.

BETHLEHEM SHIPBUILDING CORPORATION

Fore River Plant,

Quincy, Mass.

NEW CONSTRUCTION: For the U. S. Navy: *Torpedo Boat Destroyer Farragut* (No. 348), 340 ft. long, 35 knots speed. Estimated delivery February, 1934. *Heavy Cruiser CA-39, Quincy*, 10,000 tons. Estimated delivery January, 1936. *Heavy Cruiser CA44, Vincennes*, 10,000 tons. Estimated delivery January 1937. Keel laid January 2, 1934. **Four Torpedo Boat Destroyers:** DD360, *Phelps*, keel laid January 2, 1934; estimated delivery, December, 1935; DD361, *Clark*, keel laid January 2, 1934; estimated delivery February, 1936; DD362, *Moffett*, keel laid, January 2, 1934; estimated delivery April 1936; DD363, *Balch*, keel laid, January 2, 1934; estimated delivery, June, 1936.

CHARLESTON DRYDOCK AND MACHINERY CO.

Charleston, S.C.

NEW CONSTRUCTION: *Yacht Ranger*, conversion to cargo boat; completed December 14, 1933, delivered. Contract for building a 60,000-gallon gas, all-welded tanker; estimated delivery, March 1934; owners not announced.

DEFOE BOAT AND MOTOR WORKS

Bay City, Mich.

NEW CONSTRUCTION: U. S. Coast Guard Cutter No. 151, displacement tonnage 1000; keel laid, November 30, 1933; estimated launching, Sept. 1934; estimated

delivery, Nov. 1934. U. S. Coast Guard Cutter No. 152, displacement tonnage 1000; geared turbine drive; B. & W. boilers; 1500 h.p.; keel laid Dec. 15, 1933; estimated launching, Oct., 1934; estimated delivery, Nov., 1934.

THE DRAYO CONTRACTING CO.

Engineering Works Dept.,

Pittsburgh, Pa., and Wilmington, Del.

NEW CONSTRUCTION: Contract No. 872, Hull No. 997, one diesel sternwheel towboat of 91 gross tons; contract No. 983, Hull No. 1151, one steel floating drydock, Bureau of Yards and Docks, Navy Department, of 4220 gross tons; contract No. W1004, Hull Nos. 1165, 1166, 1167, and 1168, four hopper type mdse. barges, size 132' x 35' x 11' for the Union Barge Line Corp., Pittsburgh, Pa., 2072 gross tons. Contract No. 1019, Hull No. 1169, 240 H.P. single screw diesel towboat; size 90'x21'x6'9"; 153 gross tons. Hull No. 1170 (1) 13,500 bbl. welded gasoline barge. Hull size 195'x40'x13'3", Seaboard Shipping Corporation. Hull No. 1171 (1) welded steel bulk oil barge. Hull size 195'x40'x13'3", Seaboard Shipping Corporation. This makes a total of eight hulls under contract, with a total gross tonnage of 7518.

ELECTRIC BOAT CO.

Groton, Conn.

NEW CONSTRUCTION: Hull No. 17, *Cuttlefish*, fleet submarine, (SS171) for U.S. Navy, keel laid October 7, 1931; launched July, 1933; and estimated delivery, March, 1934; standard displacement, 1125 tons. Also two river boats of about 250 tons, 145 feet long, no names. Hull No. 19, fleet submarine, *Shark*, (SS174); L.B.P. 298'; beam, 25'; standard displacement, 1315 tons; keel laid, October 24, 1933; estimated launching, April, 1935. Hull No. 20, *Tarpon* (SS175); L.B.P., 298'; beam, 25'; standard displacement, 1315 tons; keel laid, Dec. 22, 1933; estimated launching, February, 1935; possible delivery, November, 1935.

DRY DOCK, PAINT, MISCELLANEOUS: U.S.S. *Cuttlefish*.

THE FEDERAL SHIPBUILDING AND DRYDOCK COMPANY

Kearny, N.J.

NEW CONSTRUCTION: Two destroyers, DD368 *Flusser* and DD369 *Reid* for the U. S. Navy, estimated completion dates—*Flusser*, Nov., 1935; *Reid*, Feb., 1936; Hull No. 126, *Seaboard* No. 77, keel laid,

Aug. 21, 1933; launched October 10, 1933; delivered Oct. 20, 1933; dimensions same as Hull 125. Hulls Nos. 127 and 128, Destroyers; Hull No. 129, barge for stock; keel laid, Dec. 13, 1933; L.B.P. 175; beam, 39; loaded draft, 12' 7"; 825 d.w. tons; Hull No. 130, barge, owner not announced, 825 d.w. tons.

GREAT LAKES ENGINEERING WORKS

River Rouge, Mich.

NEW CONSTRUCTION: Contract to lengthen the SS. Maine 105 feet, 9 inches, making the new length, 353 feet, 4 inches, between perpendiculars. This ship was shortened last year to get through the St. Lawrence River locks. Ship pulled apart, Feb. 12, 1934; estimated completion, April 1, 1934.

INGALLS IRON WORKS

Birmingham, Ala.

NEW CONSTRUCTION: Hull No. 72, river dredge; keel laid, Nov. 6, 1933; launching, no date set; L.B.P. 140 feet; beam, 49 feet. Hulls Nos. 73 and 74, river pontoons; keels laid Nov. 1933; L.B.P. 140'; beam, 8'. Hulls Nos. 76 and 77, 2 barges, A-76 and A-78; keels laid, Nov., 1933; launched Jan. 1934; L.B.P., 105'; beam, 29.5'; loaded draft, 6.25'; d.w. tons, 450; Hull No. 75, Wharfbat; 230'x55'x9'9"; keel laid Jan. 1934; estimated launching, March, 1934.

MANITOWOC SHIPBUILDING CO.

Manitowoc, Wis.

NEW CONSTRUCTION: Three U.S. Coast Guard Patrol Boats, Hull Nos. 277, 278, and 279 L.B.P. 165'; beam 25' 3"; loaded draft, 8' 6"; speed loaded, 18 knots; Diesel engines, 1300 S.H.P.; no names; no dates set; Hull No. 280, Lighthouse tender, Tamarack, L.B.P., 111' 8"; beam 29'; loaded draft, 7'; speed loaded 10 1/4 knots; Diesel electric, 450 S.H.P.

THE MARIETTA MANUFACTURING COMPANY

Point Pleasant, W. Va.

NEW CONSTRUCTION: Two 32-inch channel dredges of the dustpan suction head type for U. S. Engineer's Office, Memphis, Tenn. 244' length, 52' molded beam, and 9' depth. These dredges have steel hulls, and keels were laid: Jadwin on July 5th, 1933, and Burgess on July 8th, 1933. They are self-propelled with triple expansion engines and steam turbine drive. Jadwin

launched, Oct. 28, 1933; Burgess, launched November 25, 1933; delivered, Feb., 1934.

Three 165' Patrol Boats for U. S. Coast Guard, Washington, D. C. These boats have a 25'3" beam, they are 13'2" deep and will draw approximately 7'. They will be of the twin-screw type, propelled by two 650 horsepower Winton Diesel engines. The total displacement of each vessel is approximately 300 tons and the required speed is 16 knots. Two 132'x35'x10' steel covered cargo barges of 850 tons capacity for stock account.

MIDLAND BARGE COMPANY

(Subsidiary of Treadwell Construction Co.)

Midland and Erie, Pa.

NEW CONSTRUCTION: Hulls 248 and 249, two steel Needle Flats for U.S. Engineer's Office, Cincinnati, Ohio. 48 pontoons, 48' x 18' x 2' 10" for U. S. Engineers, Memphis, Tenn. Two barges, 40' x 18' x 3' for U. S. Engineer's Office, Chicago, Ill.

NASHVILLE BRIDGE CO.,

Nashville, Tenn.

NEW CONSTRUCTION: Hull No. 285, Dredge; keel to be laid February 5, 1934; estimated launching, March, 1934; L.B.P. 90'; beam, 22'; loaded draft, 5'.

NEWPORT NEWS SHIPBUILDING & DRYDOCK CO.

99 Broad Street, New York

NEW CONSTRUCTION: Contracts for H 359 aircraft carrier CV5, Yorktown, for U.S. Navy estimated delivery August, 1936 and H360 aircraft carrier, CV6, Enterprise, for U.S. Navy, estimated delivery, December, 1936. Also Ranger, hull 353, aircraft carrier No. 4 for U.S. Navy, keel laid September 26, 1931, launched February 25, 1933, estimated delivery May 1, 1934. There is also under construction Hull 357, freight vessel for the A. H. Bull Steamship Company, 40 West Street, New York, 410' length, 55' beam, 30'6" depth, geared turbine, delivery estimated April 30, 1934. Also Hull 358, same as above, delivery estimated during May, 1934.

THE NEW YORK SHIPBUILDING COMPANY

Camden, N.J.

NEW CONSTRUCTION: Contracts for four destroyers: Hull No. 408, Porter (DD356); Hull No. 409,

Selfridge (DD357); Hull No. 410, McDougal (DD358); Hull No. 411, Winslow (DD359); of 1850 tons each. Also two light cruisers: Hull No. 412, Savannah (CL42), Hull No. 413, Nashville (CL43), of 10,000 tons each for the U.S. Navy Department; estimated delivery dates are as follows: DD356, Porter, Dec., 1935; DD357, Selfridge, Feb., 1936; DD358, McDougal, Apr., 1936; DD359, Winslow, June, 1936; CL42, Savannah, Aug., 1936; CL43, Nashville, Dec., 1936. Oil tanker, No. 414, and oil tanker No. 415, for Standard-Vacuum Transportation Company, 15,000 tons D.W. each; keels to be laid spring 1934; delivery early 1935.

PRINCE RUPERT DRYDOCK AND SHIPYARD

Prince Rupert, B. C.

DRYDOCK, PAINT, MISCELLANEOUS: SS. Prince George, bottom damage forward entailing about 120,000 lbs. new steel, annual overhaul—time 35 days. S.S. Prince Rupert, put into commission to replace, Prince George; Albert & McCaffery Co. Ltd. scow; 21 fishing boats; 17 commercial jobs.

THE PUSEY & JONES CORP.

Wilmington, Del.

NEW CONSTRUCTION: Nos. 56, 57, and 58, cruising cutters, building for Treasury Department, U. S. Coast Guard Service; L.B.P., 150'; beams, 36'; loaded draft 13'; speed loaded, 15 miles per hour; turbine engines, 1500 S.H.P.; two watertube boilers, 325 pounds pressure, construction schedule: No. 56, keel laid, January 16, 1934; estimated launching, June 25, 1934; estimated delivery, September 29, 1934; No. 57, keel laid, January 17, 1934; estimated launching, August 26, 1934; estimated delivery, November 2, 1934; No. 58, keel laid, February 1, 1934; estimated launching, September 20, 1934; estimated delivery, December 8, 1934.

SPELDEN SHIPBUILDING CO.

Baltimore, Md.

NEW CONSTRUCTION: Hull No. 274 (Diesel), Electric, wrought iron hull, Boarding Cutter, for the U. S. Public Health Service, Staten Island, N. Y., estimated keel laying, February 15, 1934; estimated launching, July 15, 1934; estimated delivery, December 27, 1934; L.B.P. 100'8"; beam, 23'; loaded draft, 10'; speed loaded, 12 knots; two 360 B.H.P. Fairbanks Morse engines. Contract received Jan. 11, 1934.

SUN SHIPBUILDING & DRY DOCK CO. Chester, Pa.

NEW CONSTRUCTION: Hull No. 150, welded Diesel electric barge for Atlantic Refining Co., L.B.P. 190'; beam, 34'; estimated delivery, May 15, 1934.

DRY DOCK, PAINT, MISCELLANEOUS: U. S. Dredge Russell, U. S. Dredge Marshall, S.S. West Eldara, S.S. W. F. Burdell, Oil Barge No. 38, Tag Dover, M.S. Southern Sun, S.S. Pacific Cedar, M.S. Maritan Sun.

TODD SHIPYARDS CORP.
25 Broadway, New York City
(Robins Dry Dock and Repair Company, Brooklyn, N.Y.)

CONTRACTS FOR REPAIR: U.S. Army transport Republic, at a price of approximately \$14,280.40. Collision damage to SS. Munargo of the Munson Steamship Lines, N.Y. Price involved, \$72,000, delivery to be made in 45 days.

UNITED DRYDOCKS, Inc. Staten Island, N.Y.

NEW CONSTRUCTION: DD364, destroyer Mahan, estimated delivery, Oct. 1935, and DD 365, destroyer Cummings, estimated delivery, Dec., 1935, for U. S. Navy. Hull No. 818 Barge Blue Line 102 for J. McWilliams Blue Line; keel laid August, 1933; launched December 21, 1933; delivered December 23, 1933. Hull No. 821, Studerus, Barge, for Studerus Oil Co.; L.B.P. 100', beam 30', depth 8', keel laid Nov. 10, 1933; launched Dec. 27, 1933; estimated delivery, Jan. 15, 1934. Hull No. 822, tanker, keel laid, February 1, 1934; estimated launching, May 15, 1934; estimated delivery, June 30, 1934. Hull No. 823, tanker, keel to be laid, March 15, 1934, estimated launching, August 2, 1934; estimated delivery, Sept. 31, 1934. Hull No. 824, estimated keel laying, April 2, 1934; estimated launching, July 2, 1934; estimated delivery, August 31, 1934. Data on all three above: L.B.P., 252'; Beam, 40'; Depth, 14'; D.W. Tons, 1200; 2 Diesel engines of 375 BHP each building for Standard-Vacuum Transportation Co.

UNITED STATES NAVY YARD Boston, Mass.

NEW CONSTRUCTION: Destroyer DD 370, Case, L.B.P. 334 ft., beam 35 ft.; estimated delivery, Feb., 1936; destroyer DD371, Conyngham, L.B.P. 334 ft., beam 35 ft.,

estimated delivery, May, 1936; destroyer DD354, Monaghan, L.B.P. 334 ft., beam 34 ft. 2 in., keel laid, November 21, 1933; estimated delivery, May, 1935; destroyer DD-351, McDonough, keel laid May, 1933, L.B.P. 334 ft., beam 34 ft. 2 in., estimated delivery, Feb., 1935; for the U.S. Navy.

UNITED STATES NAVY YARD Charleston, S.C.

NEW CONSTRUCTION: U.S.S. Charleston, gunboat (PG 51) for U.S. Navy, building period assigned by Navy Department, Nov. 1, 1933, to Feb. 1, 1936. Work started, Feb. 1, 1934.

UNITED STATES NAVY YARD New York, N. Y.

NEW CONSTRUCTION: Hull No. 32, New Orleans, heavy cruiser; keel laid, March 14, 1931; launched, April 12, 1933; no delivery date set; L.B.P. 578'; beam 61'9"; standard displacement, 10,000 tons; geared turbine engines; express type boilers. Hull No. 350, Hull, destroyer; keel laid, March, 1933; no further dates set; L.B.P. 334'; beam, 34'2"; standard displacement, 1500 tons; geared turbine engines; express type boilers. Hull No. 353, Dale, destroyer, dimensions same as above, no dates set. Hull No. 41, Brooklyn, light cruiser, no dates set; L.B.P. 600'; beam 61'8"; standard displacement, 10,000; geared turbine engines; express type boilers. Hull No. 50, Erie, gunboat, no dates set; L.B.P., 308'; beam, 41'; standard displacement, 2000 tons; geared turbine engines; express type boilers. Building for U.S. Navy.

UNITED STATES NAVY YARD Philadelphia, Pa.

NEW CONSTRUCTION: Philadelphia (CL41), light cruiser, 10,000 tons, length overall 608'4"; breadth 61'9" extreme; depth 34' at side; estimated completion, Nov., 1936. Minneapolis (CA36), heavy cruiser, 10,000 tons, length overall 607'6"; breadth 59'6" molded; depth 35'8"; tentative delivery date Aug. 1934; Aylwin (DD355), destroyer, 1,500 tons; Cassin (DD372), destroyer, 1,500 tons; Shaw (DD373) destroyer 1,500 tons for last three above; length overall 341'3", breadth 34'11 1/2" extreme; depth 23'2" at side; tentative delivery dates January, 1935, February, 1936, May, 1936, respectively. Four U. S. Coast Guard cutters to be delivered De-

cember 1935, February 1936, April 1936, and June 1936, respectively; dimensions: L.B.P., 308'; Beam, 41' 3 3/4"; Loaded draft, 2000.

UNITED STATES NAVY YARD Portsmouth, N. H.

NEW CONSTRUCTION: Three submarines: SS 170, Cachalot, keel laid, Oct. 21, 1931; launched, Oct. 19, 1933; commissioned Dec. 1, 1933; estimated delivery, Feb., 1934. SS 172, Porpoise; keel laid, Oct. 27, 1933; estimated delivery, Feb. 1936. SS 173, Pike, keel laid, Dec. 20, 1933 estimated delivery, May, 1936; Coast Guard Harbor Cutter 62; estimated delivery, Nov. 1934.

UNITED STATES NAVY YARD Portsmouth, Va.

NEW CONSTRUCTION: Torpedo Boat Destroyer Tucker (DD374) for U.S. Navy, 341 ft. long; beam 35'; loaded draft, 10'10"; treaty standard displacement, 1500 tons; No. 4 boilers; 35 knots speed; estimated delivery, February, 1936; Torpedo Boat Destroyer Downes (DD375) for U.S. Navy, 344 ft. long; beam 35'; loaded draft, 10'10"; treaty standard displacement, 1500 tons; No. 4 boilers; 35 knots speed; estimated delivery, May, 1936. Laying down lines under way in mold loft.

MODERNIZATION: Battleship BB42, Idaho; estimated completion, Sept., 1934.

DRYDOCK, PAINT, MISCELLANEOUS: U.S.S. Idaho (BB42), (AC23), U.S.S. Overton (DD239), U.S.S. Sturtevant (DD-240), U.S.C. G.C. Mendota, U.S.S. Overton (DD-239), U.S.S. Sturtevant (DD240), U.S.S. Fairfax (DD93), U.S.S. Hamilton (DDI41), U.S.C.G.C. Sebago U.S.C.G.C. Mendota, and miscellaneous tugs and barges.

TRADE NOTE

Worthington Elects New Director. The election of A. G. Pratt, President of The Babcock & Wilcox Company, to the Board of Directors of the Worthington Pump and Machinery Corporation, is announced.

Mr. Pratt is also a director in the following: The Babcock & Wilcox Company, The Babcock & Wilcox Tube Co., Babcock & Wilcox, Ltd., of London, Diescher Tube Mills, The Lummus Company, Fidelity-Phenix Fire Insurance Co., Fidelity & Casualty Co. of New York; and a Trustee of Central Hanover Bank and Trust Company. Also a Director and Chairman of Executive Committee of Babcock-Wilcox & Goldie-McCulloch, Ltd., of Canada.



Marine Insurance

Carriage of Corn by Water to Pacific Coast Ports

By David W. Dickie

A new trade and one that may develop into a permanent business if proper precautions are taken is the carriage of corn by water from the East Coast and New Orleans to Pacific Coast ports.

Several factors must be taken into account if heavy losses by corn going out of condition are to be avoided.

1st. The corn must be in proper condition to ship before being accepted by the steamer.

2nd. Precautions must be taken to insure that outside moisture and heat do not have access to the corn cargo.

3rd. The carbon dioxide formed must have an opportunity to escape.

4th. Special precautions must be taken to learn if the corn has been kiln dried too rapidly or has been subjected to harmful handling at any stage in its history as such corn may be in no condition for safe ship-

ment. This is the basic reason for the acidity test, free fatty acid test and rancidity test. Direct heat drying so improves the appearance of corn that without these chemical tests a carrier might be deceived as to his responsibility.

5th. Care must be taken to see that the corn is properly tempered for the voyage. It is not to be expected that corn taken from storage in an elevator for a long time at low temperature will carry and turn out well when loaded in a ship where a much higher temperature prevails.

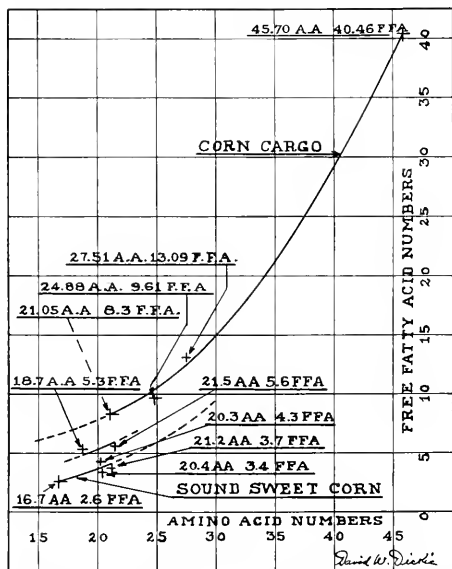
6th. For the purpose of shipping out of condition corn any rise in Free Fatty Acid above the number Four as determined by a cereal chemist must be counteracted by reducing the moisture content by drying, preferably in a direct heat dryer. After drying the moisture should be from 9 to 12 per cent depending on how far the deterioration of the corn has gone. In the absence of definite reliable data on this subject the following table is suggested backed by experience of shipping corn in bulk.

| Free Fatty Acid Number | Moisture % Recommended |
|------------------------|------------------------|
| 4 | 14% |
| 5 | 13% |
| 6 | 12% |
| 7 | 11.5% |
| 8 | 11% |
| 9 | 10.5% |
| 10 | 10% |
| 11 | 9.5% |
| 12 | 9% |

Generally speaking, corn is of the following composition:

| | Percentage |
|------------------------------|------------|
| Water | 13.12 |
| Nitrogenous substances | 9.85 |
| Fat | 4.62 |
| Sugar | 2.46 |
| Gum and Dextrine | 3.38 |
| Starch | 62.57 |
| Cellulose | 2.49 |
| Ash | 1.51 |

The largest single ingredient of corn is starch (62.57 per cent) which is composed of 12 parts of carbon, 20 parts of hydrogen and 10 parts of oxygen. Starch ferments through hydrolyzation into Maltose (by the chemical action of water incited by diastase of malt) and through the further hydrolyzation of maltose into dextrose by means of an enzyme of yeast known as



Graph showing amino acid and free fatty acid numbers of sound sweet corn and of cargo corn on an intercoastal voyage to Pacific ports.

maltase or malto glucase.

Dextrose along with the natural sugar of the corn will spontaneously undergo the process of alcoholic fermentation, forming alcohol and carbon dioxide. One of the causes of the presence of foul air noticed in a cargo hold containing corn that has gone out of condition is the Carbon Dioxide resulting from the above transformation.

It will be noticed from this description how important the presence of water is to the chemical change that precedes the fermentation of the corn. Also water starts the germ to swell or germinate admitting water to the starch of the corn and at the same time liberating the natural water content thereof. Once the cycle is started such part of the transformation as has taken place cannot be retracted even by drying, handling and ventilating. The next contact with moisture starts the process off practically at the point where it was previously arrested.

Also respiration takes place either in the presence of air or in the absence of air. In normal respiration, the oxygen of the atmosphere is conducted to the cells where respiration occurs and there Heat, Water, and Carbon Dioxide are liberated.

● Acidity in Corn

Natural corn as it leaves the farm shows upon test a certain "Degree of Acidity" (somewhere between 14 and 18) believed to be due mainly to the presence of Amino Acids, a small percentage of Free Fatty Acids, and a small amount of the mineral constituents of the corn. "Degree of Acidity" is determined by the method given in Bulletin 102 of the United States Department of Agriculture (now out of print). The number representing the "degree of acidity" is the number of cubic centimeters of 1/100 normal Potassium Hydroxid alkali solution necessary to neutralize the acids in ten grams of corn. This is the amino acid test.

Dry corn on the farm with a "degree of acidity", as determined by the above method, of 18 and a moisture content of 14 per cent will carry safely and will turn out in good condition provided it is not subjected to the action of uncontrolled Heat, Moisture, and Air in transit and provided further it does not have an excessive Free Fatty Acid content and is not Rancid.

Corn that has been properly dried in a direct heat dryer as soon as it can be shelled is usually easier to keep and has better germinating qualities than corn that has been allowed to dry naturally even under the most favorable conditions that usually obtain on a farm where uncertain rain, humidity conditions and unsterilized insect pests have to be contended with. One reason assigned for this is that the hormone necessary for the ripening process of the corn is properly and efficiently driven off instead of partly left behind to upset and disturb the physiological processes that necessarily follow when the corn germinates and grows.

The chemical transformation and respiration of corn increases the "degree of acidity" and increases the temperature until the bulk of the substances have been changed chemically so the importance of the acidity test is obvious.

On account of the presence of oil in the corn (4.62 per cent) the Free Fatty Acid test is important. The oil is largely present in the germ of the corn and to recover the oil commercially the germ is separated mechanical-

ly from the kernel and the oil extracted by pressure. When obtained from damaged corn the unrefined oil is high, both in total and volatile fatty acids, but when prepared from sound corn by the dry process it is low in acidity. Fatty acids are liberated by the action of moisture in the presence of enzymes.

The number representing the Free Fatty Acid content is the milligrams of Potassium Hydroxid necessary to neutralize the free fatty acids in a gram of fat. It is believed that this determination denotes the presence of Palmitic acid, Linolic acid and Oleic acid.

Most of the trouble therefore starts at the germ of the corn and it will be noticed that corn of high acidity with respect to both amino-acids and free fatty acids has low germinating characteristics indicating quite plainly that the presence of free fatty acids denotes a change in the properties essential for germination.

The method usually used for the determination of rancidity is the Kreis Test and consists substantially of mixing the recovered oil or fat with hydrochloric acid. The reagent phloroglucin is then added and a red to orange color in the acid layer after it has settled out indicates rancidity. Due to the delicate nature of the tests it is sometimes possible to get a reaction showing rancidity from material that will not show the presence of free fatty acids and also it is possible to get a free fatty acid determination from material that shows no rancidity reaction.

About 9.85 per cent of corn consists of nitrogenous substances which are subject to certain fermentations. The resulting end products may not show a reaction on the Kreis Test but may cause an effect similar to rancidity. In other words there may be an incipient fermentation taking place which does not produce chromogenic bodies that will give a color reaction with the Kreis Test.

● Experience of a Corn Cargo

A cargo of corn shipped from Chicago, Illinois, to Oakland, California, via Buffalo in 1932 and taking 47 days en route, developed great deterioration and was made the basis of a thorough investigation by the writer.

The Amino-Acid and Free Fatty Acid tests for this cargo of corn when plotted give the following results indicating the deteriorated condition of the corn at the time of arrival. All tests are at 14.9 per cent moisture content.

Amino Acid Free Fatty Numbers Acid Numbers

| | | |
|------------------------|-------|-------|
| Part of cargo at | | |
| finish of voyage | 45.70 | 40.46 |
| | 45. | 38.8 |
| | 40. | 29.2 |
| | 35. | 21.2 |
| | 30. | 15.0 |
| Corn at start | 25. | 10.5 |
| of voyage | 21.05 | 8.3 |

A base line giving the top limits of Acid Numbers for corn that can be considered good has not been established with certainty up to the present date but tests on some sample of sound sweet corn showed as follows and are given to assist in arriving at an opinion regarding safe conditions for corn for shipment. The tests are corrected to a moisture content of 14.9 per cent.

| | Amino Acid Numbers | Free Fatty Acid Numbers |
|------------------|-----------------------|----------------------------|
| 673 sacks | 21.5 | 5.6 |
| 1650 sacks | 18.7 | 5.3 |
| 1709 sacks | 20.3 | 4.3 |
| 1848 sacks | 21.2 | 3.7 |
| 1250 sacks | 20.4 | 3.4 |
| 3039 sacks | 16.7 | 2.6 |

The sound sweet corn and the cargo corn of the above tests were harvested in the fall of one year and tested in August of the next eliminating the factor of age as far as possible in making a comparison between the two tests.

A curve plotted through the determinations of the cargo corn and the sound sweet corn is shown in the figure. Between 21 and 22 Amino Acid Numbers an abrupt change seems to take place and which seems to indicate that corn is a hazard on a long voyage when it has reached 21 Amino Acid number combined with a Free Fatty Acid number greater than 4. In fact the two first samples of the sound corn indicate that there would be a risk in shipping them for a long voyage if the moisture content were allowed to rise to between 14 per cent and 15 per cent.

When certain selected kernels of the cargo corn were cut open it was plainly evident from the dark brown color of the germ that the corn had germinated at some time and that the germ had been killed. The tests of 21.05 A.A. and 8.3 F.F.A. at New York, therefore, did not represent a condition of corn that might be expected in the orderly aging thereof.

The significance of the excessive rise in free fatty acid content of the corn from 8.3 to 9.61, 13.09 and 40.46 on the voyage without a change of moisture content, that is, without any outside moisture being admitted to the cargo in the hold is that the condition that caused the damage did not originate on shipboard.

According to tests taken with electric resistance thermometers on grain stored in bulk by the United States Grain Corporation it will hold its temperature without appreciable loss or gain of heat for six months at least due to the fact that it is such a poor conductor of heat where there is no circulation of air.

This corn having an average moisture content of 14.5 per cent varying with the different cars was stored in bulk in elevators at Chicago in the fall of 1931 when the temperature of the air ranged from 59 degrees to 50 degrees Fahrenheit, 54.5 degrees average, and the relative humidity ranged from 80 per cent to 69 per cent an average of 74.5 per cent. As far as can be learned, no effort was made to temper the corn anywhere, either at Chicago, intermediate points, or New York, so it is fair to assume that the temperature of the corn remained fairly constant between Chicago and New York.

An unfortunate incident connected with this shipment is that at Buffalo a lot of corn consisting of 21,150 bushels was borrowed to round out the shipment and this lot went on to New York without a Federal Appeal Certificate so it was not possible for the U. S. Department of Agriculture to make the Amino Acid and Free Fatty Acid tests on the borrowed lot of corn separately. The Federal Appeal Certificate is only required on interstate shipments.

When corn for any reason whatsoever has absorbed moisture above that prescribed for the particular Department of Agriculture Grade it otherwise would be entitled to, it is put in an elevator and cooled by dry air or other means to bring the moisture content back to that of the particular grade. If mere handling and ventilation is sufficient to accomplish this, very little or no damage should result to the corn.

If on the other hand it is necessary to put the corn through a kiln dryer which is an apparatus that by the application of heat and air circulation reduces the moisture in the corn, care must be taken that correct temperatures and sufficient time for drying are used. Otherwise the surface of the kernels may under the microscope show minute cracks or checks. This surface deterioration leaves the corn in a condition where it is extremely susceptible to the presence of moisture, heat and air and will go out of condition much more easily than corn that has been dried properly.

Temperatures at or near the boiling point of water (212 degrees Fahrenheit) will kill the life germ in corn kernels. No harm, however, should result if temperatures around 150 degrees Fahrenheit are used and not more than 2 per cent of moisture removed from the corn at any one passing through the dryer.

Since mold developed, there must have been free moisture present and this moisture must have been liberated from one part of the cargo and passed through to another. This moisture could not have come from the outside air as the moisture content of the cargo upon leaving New York was 14.9 per cent and upon arrival at Oakland 47 days later was 14.8 per cent, definitely proving that no increase in gross moisture took place on the voyage.

From Page 23, Handbook of Official Grain Standards, it will be seen that Grade 2 Yellow Corn has only the following characteristics to comply with:

| | |
|---|---------------|
| Weight per bushel | 53 pounds |
| Moisture | 15.5 per cent |
| Foreign Material and Cracked Corn | |
| ..... | 3 per cent |
| Damaged Corn | 4 per cent |
| Heat Damage | .1 per cent |

Also Page 25, "Heat damaged kernels shall be kernels and pieces of kernels of corn which have been distinctly discolored by external heat or as a result of heating caused by fermentation."

Nowhere in the grading instructions is anything said about acidity or rancidity which means that corn that has started to develop excess free fatty acids but has not arrived at the discoloring stage is still Number 2 Yellow Grade if it is handled, dried, and ventilated immediately. There is every reason to believe, however, that such corn is not fit to ship on a long voyage without going to the very heavy expense of rigging the ship up to act as a grain elevator.

If previous to the receipt by the carrier acidity has developed in the corn beyond a certain base line that obtains in all sound sweet corn a material fact governing its care and custody has been concealed and this fact is not shown by the United States Department of Agriculture Grading. Also, if free fatty acid and rancidity have developed and have been concealed by aera-

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tion and direct heat drying, the moisture content alone is not sufficient evidence of the shipping quality of the corn.

● Grade Certificate a Poor Criterion

The tests made on sound sweet corn in this instance specifically illustrate the futility of depending on the Grade Certificate as a criterion to judge of the shipping quality of corn. No exception can be alleged to the grading of the corn samples as the Federal Grading Rules were complied with exactly.

From the curve of the Figure the Licensed Grain Inspector's determination of the Federal Grades for the samples of sound corn have been arranged in the order of their Free Fatty Acid values:

| Yellow Corn | | | | |
|-------------|----------|---------------|-----------------|-------|
| Mark | Moisture | Weight Pounds | Free Fatty Acid | Grade |
| 3039 sx | 10.1% | 59.0 | 2.6 | No. 1 |
| 1250 sx | 12.3% | 61.0 | 3.4 | No. 2 |
| 1848 sx | 11.7% | 60.5 | 3.7 | No. 2 |
| 1709 sx | 9.8% | 59.5 | 4.3 | No. 2 |
| 1650 sx | 9.2% | 59.5 | 5.3 | No. 1 |
| 673 sx | 11.3% | 61.0 | 5.6 | No. 1 |

It will be seen from the above table that the two poorest of the six samples of corn when judged from the excess amount of Free Fatty Acid were graded No. 1 while three samples that were of better quality from a transportation point of view were Graded No. 2.

The weight per bushel of corn is influenced by the amount of moisture present. When moisture is added to the corn the weight per bushel becomes less. While each kernel of corn is heavier due to the addition of water, the kernels swell and occupy more space thereby having less kernels to the bushel and consequently less weight per bushel.

● Stowage

From the background herein set forth we can say:

(1) that corn in bulk should be stowed at least one deck below the weather deck to avoid the heat of the sun;

(2) that it should not be ventilated by allowing warm moist air to blow down the ventilator and over the corn;

(3) that corn that originates at New York harbor is loaded in a comparatively cool climate that is fairly low in humidity. As the vessel proceeds south toward the Canal the air becomes more and more humid and

the temperature rises. It is therefore fatal to circulate this moist air over the corn as the corn will absorb moisture and start all the chemical transformations enumerated before;

(4) that an opening should be left for the purpose of exhaling the carbon dioxide which develops as a result of the fermentation and respiration;

(5) that adjacent to fire room and engine room bulkheads a space of 10 inches to 12 inches should be left clear and this space should be definitely ventilated with an up and down draft to carry off the heat. The simplest way to do this is to put athwartship battens on the face of the vertical stiffeners and put the planking of the interlining of the hold vertical. This leaves an air space that can and should be ventilated across the stiffeners and arrangements should be made to get rid of the warm air.

Against the ship's side lining does not seem to be called for as any heat that is generated in the corn four feet from the ship's side would be conducted through the corn and steel of the ship to the water. Corn is a poor conductor of heat which limits the distance to about four feet.

This, of course, is only true where the ship passes slowly from warm to cold water. If the ship passes suddenly from tropical water into cold water as, for example, from the Gulf Stream into the Labrador Current, the steel hull of the ship would cool rapidly and any moisture in the air imprisoned in the interstices between the kernels of the corn would precipitate on the inside of the steel hull in the form of sweat. In this case, lining the sides of the ship would be absolutely necessary.

Where the ship is lined with ceiling inside of the frames there should be a circulation of air provided to carry off any heat generated in the corn. The lining is usually wood which is a poor conductor and usually no means are provided for a circulation of air at the bottom. For that reason there is usually not very much to recommend this practice. Furthermore, if the air is humid and is allowed into the space between the lining and the plating of the ship it will deposit moisture on the ship's side and the outside of the lining.

It is possible to circulate air over the corn but an extremely difficult job to circulate any appreciable amount of air through the corn without going to considerable expense for tunnels which have to be fitted

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into the lining on alternate sides of the ship and special trunks fitted from the cowl ventilators on deck.

Even at quite high air pressures such as would be obtained by an efficient fan the circulation of air through the corn is very small. This is very fortunate as circulating air through the corn without treating it to reduce its temperature, humidity and oxygen content is anything but beneficial.

Another reason for excluding moist air is that where the structure of the ship is cooler than the outside humid atmosphere the moisture contained in the air will be deposited on the cool overhead members of the ship's construction and drip on the corn causing it to mold and sprout.

● Certificate

A certificate should be obtained from a responsible cereal chemist, such as would be connected with large baking concerns, giving the Amino-Acid and Free Fatty Acid Numbers and the rancidity of the corn with a statement therein as to what per cent, if any, of the corn has started germination. If the moisture content is over 14 per cent, the acidity between 21 and 22 and the free fatty acid exceeds between 4 and 5 together with one-tenth per cent of germinated and killed corn the receipt for the cargo should state "Received in bad order" with a copy of the chemist's report attached and the shipper asked for a set of instructions for the care and custody of the cargo of corn.

| | | |
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Marine Insurance Notes

L'Atlantique Case. The underwriters on this 170,000,000 francs loss have appealed from the judgment against them by the Tribunal de Commerce.

A Slow Norwegian. The Norwegian steamer, Svartisen, 1350 gross tons, leaving Grangemonth for St. Johns, New Brunswick, on December 29, 1933, was not heard from after she passed Dunnet Head, December 30, until she arrived at her destination late afternoon, February 2. Reinsurance was quoted at 30 per cent. This steamer had averaged less than three knots.

Rules for Safety: British Board of Trade has issued "Statutory Rules and Standard Regulations" on the provisions of the International Convention for the Safety of Life at Sea, London, 1929. The object is to provide a uniform scheme for training crew members of all passenger vessels registered in the United Kingdom by means of musters and drills in the use of life saving equipment. These rules and regulations have been approved by the Merchant Shipping Advisory Committee.

Marine Underwriters' Election. At their annual meeting the Association of Marine Underwriters of San Francisco elected Richard J. Lutich as their unanimous choice for President in 1934. Lutich is manager of the marine department

of the Geo. E. Billings Company.

Fireman's Fund Marine Department. In his annual report to the stockholders, J. B. Levison, President of Fireman's Fund Group, records an improvement of business in the Marine Department as follows:

Income from the marine branch amounted to \$2,869,000 compared with \$2,496,000 in 1932. It should not be assumed from this that the marine business has increased. The increased income is due largely to inland business. Premiums amounted to \$3,300,000 in 1931 and \$4,000,000 in 1930, a decline of about 28 per cent during the four-year pe-

riod.

The destruction by fire of the French liner L'Atlantique was referred to at last year's meeting. However, the loss actually occurred in 1933, and appears in this year's account. The L'Atlantique is undoubtedly the largest hull loss in the history of the marine insurance business.

The inactivity in foreign commerce has had its repercussion in increased competition for cargo business with the inevitable results. Hull business, fortunately, has been maintained in volume, notwithstanding the continued depression in shipping.

An important and constructive development last year was the adoption by the National Convention of Insurance Commissioners of a definition for marine writing powers. This definition has been accepted by a majority of the states, and should have a stabilizing effect on the marine and fire business since it eliminates the conflict and confusion which have existed for some time.

Freights, Charters, Sales

February 19, 1934

Since our last report the Pacific Coast freight market has become distinctly easier and there has been less demand for either liner space or full cargoes. There has been some chartering for wheat to China and the usual number of fixtures from British Columbia for the European berth.

There are inquiries for lumber to China but shippers only indicate \$5.50 per M for this business.

As noted below a number of American ships have been fixed on time charter for indeterminate periods, but no information has been given out as to the trades in which they are to be employed.

Following is a list of charters:

Grain: American steamers Oregon, San Julian, San Felipe, San Pedro, Jefferson Myers, Columbia River to Shanghai, \$3.75; Norwegian motorship Belnor, British Columbia, Yarmouth, p.t. British steamer Victoria City, Columbia River to Shanghai, p.t.

Miscellaneous: Norwegian motorship Bronnoy, British Columbia to U.K./Cont., p.t.; British steamer Monkleigh, British Columbia to U.

K. 20/6 f.i.o., option two ports 21/6; British steamer Appledore, British Columbia U.K./Cont., lump sum; Norwegian motorship Dagfred, British Columbia U.K./Cont., p.t.; Norwegian motorship Fernbrook, British Columbia Yokohama and Osaka, p.t.; British steamer Anglo Saxon, British Columbia to London, 19/6 f.i.o.

Time Charter: British Motorship Glenbank, delivery British Columbia redelivery China or Japan, 5/6; Danish motorship Nordhval, delivery North Pacific, redelivery U.K./Cont., 3/6; Danish motorship Stjerneborg, 5 to 7 months, delivery North Pacific, p.t.; British steamer Harbledown, 1 trip delivery North Pacific, redelivery China, p.t.; American steamer Missoula, delivery North Pacific, redelivery U. S. Gulf or North Atlantic; American motorship Frank Lynch—same.

Sales: American steamers Texas Planter and Texas Shipper, Newtex Steamship Corporation to McCormick Steamship Co. p.t.; American motorship Frank Lynch, W. M. Gray to Continental Grain Co., p.t.; American steamer Johan Paulsen C. L. Arques to W. Berg Co., p.t.

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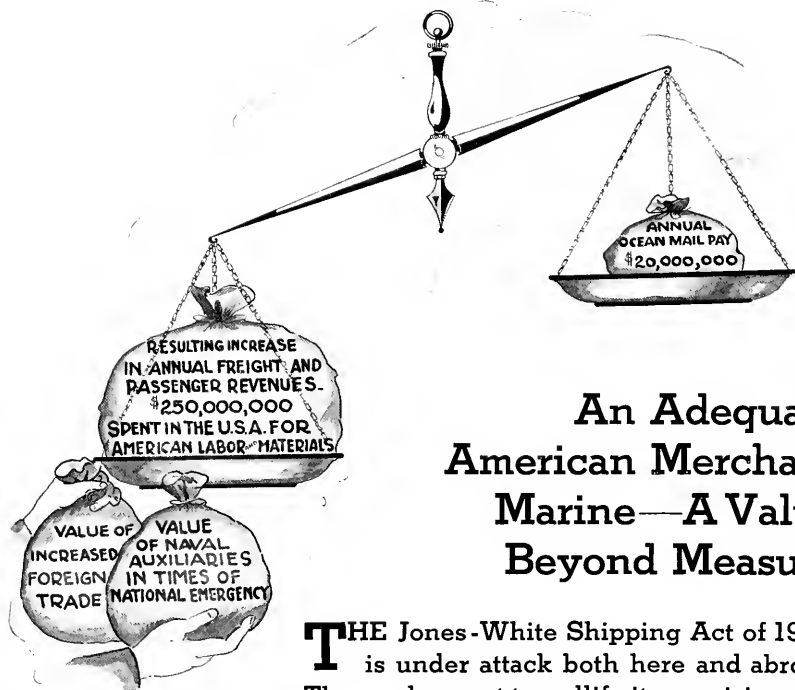
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THE Jones-White Shipping Act of 1928 is under attack both here and abroad.

Those who want to nullify its provisions are working to scuttle the American Merchant Marine. In this country an attempt has been made to justify these attacks on the ground of economy. It is claimed by some individuals that the United States could save \$20,000,000 a year by abolishing our ocean mail contracts. But in urging this claim critics disregard the other side of the ledger.

Examine the record for yourself. You will find that Government aid for American ships is repaid to American industry and labor many times over. You will discover that an adequate American Merchant Marine is indispensable to the development of our foreign commerce. You will understand that in times of national emergency a modern merchant fleet is necessary for our well being and security.

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"NAMES ARE NEWS"



BY BERNARD De ROCHIE

● HAROLD F. HUGGINS PROMOTED!

Genial and popular **Harold Huggins**, who has been the representative of the Edison General Electric Appliance Company, Hotel and Bakery Division, in the district comprising northern California and the Pacific Northwest, was called into Chicago headquarters recently for the company's annual sales conference.

He returns to the Coast with a new feather in his cap as a result of his appointment as Western Manager for the Hotel, Restaurant, Bakery and Marine Division of his company. He is now in complete charge of the sales of "Edison" Commercial Electric Cooking and Baking Equipment in the sales of Washington, Oregon, Idaho, Montana, California, Nevada, Utah, Colorado, Arizona and New Mexico.

Harold is not only a salesman, but also a graduate engineer from the world famous California Institute of Technology. This fact has made him many friends, as he has always been willing to put his engineering knowledge at the disposal of the hotel, restaurant and marine fraternity in the solution of their mechanical and operating problems.

He has proved himself a capable executive and an organizer of no mean ability in his service here on the Coast. We feel sure that in his new duties as Western District Manager he will be an outstanding success.

We take this opportunity to congratulate Harold and also to congratulate his company on making a selection we know will be popular throughout this entire section.

John C. Rohlfs, marine manager of Standard Oil Company of California, and president of Pacific American Steamship Association, visited East Coast cities on official business during the month.

● CAPTAIN TODD RESIGNS SCHOOL SHIP POST

The resignation of Captain **Emile Topp** as skipper of the State Nautical School Ship was announced through the daily press during the first part of February.

The valuable work which has been accomplished directly through the efforts and guidance of this leader will stand on the record for all time. One cannot conceive this unselfish labor as wasted and every man-Jack of the crews of two memorable school-ship voyages will God-Speed the return of conditions which will again make possible the return of Captain Topp to this command.

Board of Governors of the California State Nautical School appointed Chief Engineer **Richard C. Dwyer** to officiate as head of the schoolship which will be berthed at California City.

Dick has been chief of the California State since she was put into commission. He was first chief of the Malolo and served Newport News Shipbuilding and Drydock as guarantee engineer.

● B. of M. U. ELECTION

The February election of officers for Board of Marine Underwriters of San Francisco resulted in these selections:
President—

J. R. S. Servaes of Pacific Marine Insurance Co., Inc.

Vice-president—

A. B. Knowles of St. Paul Fire and Insurance Co., Inc.

Directors—

Harold V. Manor of Balfour Kessler Agencies;

George Jordan of Fireman's Fund Insurance Co.;

F. A. Livingston of Mathews & Livingston;

George H. Ismon of Union Marine Insurance Co.;

H. J. McCauley of Insurance Co. of North America.

● RETURNING FROM MANILA

By the time this appears in print our long absent friend, **Herman D. Nichols**, will have returned from his sojourn in the Philippines. He is due back at his home port in San Francisco during the first week in March, and is doubtless inspecting hawsers and ratlines on board a Dollar liner as we go to press.

Herman has made a close-hand study of fiber productions under plantation conditions, rounding out his thorough knowledge of cordage manufacturing methods.

His waterfront friends 'round the Bay will be glad to see his genial presence once again and to get the latest news from the Islands.

● ALASKA S. S. PROMOTES

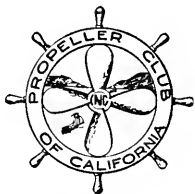
L. W. Baker has been elevated to the position of Traffic Manager of Alaska Steamship Company in Seattle. Our old friend, **Les**, started his steamship career with the Pacific Alaska Navigation ahead of their merger with the old Pacific Coast Steamship Company — the combination in which formed the present day Admiral Line. This scribe worked on the docks of Piers B and D with Les and his newly appointed Chief Clerk, **Sam Klein**, back in the days when the Governor and the President were always Monday night arrivals, requiring the burning of midnight oil, the allotment of "supper money" and the building up of friendships which still prevail. Kinda hard to keep track of all those old-timers, but it is always a thrill to hear of a well-deserved promotion of one of the old guard. Congratulations, Les! and to you likewise, Sammy!

George C. Codrington, president of Winton Engine Corporation, personally supervised his company's striking exhibit at the recent National Motor Boat Show in New York.

The new steel-type, 2-cycle Diesel developed for the Burlington Railroad's new fast-speed stream-lined passenger train attracted intense interest.

Official News of the

PROPELLER CLUB of California



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● Luncheon Meetings

January 23. It was naturally expected that we couldn't repeat the big attendance of the last meeting—but Lieutenant-Colonel H. A. Finch addressed a capacity audience, proving the interest in his chosen subject—Federal Harbor work on the Pacific Coast and around San Francisco Bay—as well as his own popularity as an authentic speaker.

His graphic talk was most interesting and instructive. Charts were prepared showing comparative data on major harbor district projects from Puget Sound on the North to San Diego on the south. Jetty construction, dredging and channel operations were illustrated and described and the 30-minute delineation of what Uncle Sam is doing for the improvement of navigation sent every member away with the "facts in hand."

President Havaside introduced the newly appointed chairman of the Board of Governors, Charles H. Robertson, who, in turn, presided over the meeting—and with good effect.

—P C—

February 6.

A new record in attendance. California Street cable cars fairly bulged with Propellers ascending the Nob Hill heights to hear H.C. Cantelow, secretary-manager of the Pacific Coastwise Conference.

The speaker was introduced by chairman-of-the-day, Edward H. Harms, McCormick Steamship official, who commented on our guest's long and varied career in Pacific ship-operating circles.

Speaker Cantelow presented a fact-finding study of the hazards that would threaten shipowners if Section 4 of the Interstate Commerce Act was suspended. This talk

Your March dates, shipmates, and please jot 'em down on the desk calendar, are:

March 6

March 20

Dick Glissman has something up his capacious sleeve for March 6—and it's more than his trusty right arm!

His adversary, Ralph Myers, has been quoted as saying that this date should mark an all-time "low" in P. C. annals, but we daresay Ralph will be among those present to watch Dick's antics.

And then again ole Doc Glissman might surprise us with something sublime, serious and surreptitious. At any rate, we'll expect a crowd!

was, by all standards, one of the most important and absorbing we have ever had presented at the club and the entire meeting established a high mark of interest and worth while value.

—P C—

February 20.

"Marine Turbine Propulsion" presented by W. B. Flanders, chief marine turbine engineer of Westinghouse Electric & Manufacturing Co., gave us a real opportunity to hear an expert.

Chairman-of-the-day, W. Edgar Martin, handled this meeting with shipboard routine, and called upon M. E. Hickman, superintending engineer of Matson Navigation Company, to give a personal introduction of the guest speaker. Chairman Martin referred to Mil Hickman as one who was reared "with a turbine for a rattle" and speaker Flanders paid tribute in his talk to the Matson engineer's knowledge of this type of propulsion.

His talk was technical and semi-

technical in turn — absorbing throughout to the big audience. He traced the origin of the turbine in marine power since its development by Parsons and through the adaptations made by the Westinghouse Company. Interesting reference was made to the adoption of turbine power by the Matson Line in the construction of the S.S. Maui years ago — a pioneer Pacific Coast installation.

In the audience were many engineers of the Propeller Club roster and the prolonged applause indicated that Mr. Flanders presented a talk which was both interesting and instructive to all in the audience.

A pleasing interlude of music was presented by Frank Terramere, excellent tenor, who sang "Duna" and "Roses of Picardy". The audience upon invitation joined in the chorus of the last-named and you'd be surprised how many knew the words. Joe Hollings officiated at the piano with good effect. Good boy, Joe, and thanks a million!

—P C—

New Members:

C. C. Kriemler
David Logan
George Kaufmann
Henry H. Smith
Wm. Gissler, Jr.
A. J. Campbell
Arthur Forster

Golf Tournament:

The following Golf Committee has been appointed:

Byron Havaside, Chairman
John Greany
Chuck Sprawkins
Vernon Howell
Capt. Arthur De Guire
Louie Silversen

The Committee are arranging for a tournament to be held April 10 at Menlo Country Club. Detailed announcements in the near future—says the committee!

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Efficiency and economy in the generation of steam for marine propulsion need not be limited by the lack of suitable or complete equipment. Any practical specification or operating condition can be met, effectively and economically, with Babcock & Wilcox Marine Equipment.

This modern propulsion equipment, whether a single unit or complete equipment for an entire installation, includes every characteristic requisite to complete operating satisfaction . . . every refinement that only long experience, unsurpassed engineering skill, fine workmanship, and unexcelled manufacturing facilities can produce.

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In component equipment, The Babcock & Wilcox Company offers a wider selection than is available from any other one manufacturer. High furnace efficiency and availability are provided by the use of either water-cooled or refractory furnace constructions regardless of ratings and the fuel used. Where coal firing is most economical, the chain-grate stokers, or coal pulverizers and

burners built by Babcock & Wilcox will insure the most efficient use of this fuel. For oil burning, there are oil burners of the mechanical- and steam-atomizing types for natural draft, and for forced draft in open or closed firerooms, as well as burners with self-contained turbine-driven blowers. An indication of their wide acceptance is evidenced by the installation of more than 19,000 burners of these types.

Another example of the wide range of Babcock & Wilcox Marine Equipment is found in the completeness of the heat-absorbing units and in equipment for oil separation and feedwater regulation. When superheated steam is required, various types of Babcock & Wilcox Superheaters are available; when it is desirable to utilize more effectively the heat of the combustion gases, Babcock & Wilcox Economizers and Air Heaters are also available in suitable arrangements. Babcock & Wilcox Desuperheaters, Oil Separators, and Feedwater Regulators, too, perform their respective functions efficiently and reliably.

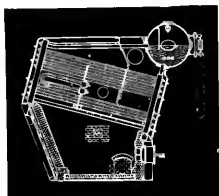
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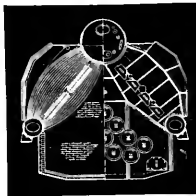
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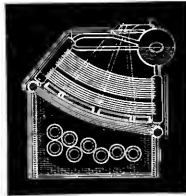
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B & W Marine Boiler



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In Babcock & Wilcox Marine Equipment, the Marine Industry is assured not only of suitable and complete equipment for the best solution of propulsion problems but also of the quality of each unit within the entire installation. Furthermore, the Industry is assured of operating satisfaction and unfailing service from complete units built under one undivided responsibility by the largest and most progressive manufacturer of marine steam-generating equipment.

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LOS ANGELES

● AUGUST A. BUSCH

The tragic death of **August A. Busch**, which occurred during February in St. Louis, Missouri, created nation-wide mourning in the passing of one of this country's greatly respected business men.

Few of us but will pause to reflect with admiration on the brilliant career of this man who headed the Anheuser-Busch interests and the Busch-Sulzer Bros. Diesel Engine Company.

Mr. August A. Busch spent his entire business career in the advancement of Diesel Engineering in America, and it would be difficult to single out any individual who has done more for the industry of which he was such an integral part, with the possible exception of his own father, Adolphus Busch, who built the first American Diesel Engine back in 1897.

Out here on the Pacific Coast we have the notable example of the achievement of August A. Busch—the culmination of his firm's high standards of Diesel Engineering. We refer to the power-plant installation on the Puget Sound Ferry, M.S. Chippewa, a fitting monument to the high ideals, integrity and strict adherence to fair-dealing ethics which characterized this business leader.

Those men of the Busch-Sulzer organization who will carry on the traditions founded by their late leaders may well be proud of the progress in Diesel craftsmanship and engineering which is so well typified in this particular installation.

August A. Busch followed with close personal interest the complete installation of this propulsion plant and one of his most gratifying experiences must have been the enthusiastic reports of performance records on which he was kept posted by "Chippewa" officials. The perfection of machinery which has stood up most satisfactorily in daily service over twenty-two months in the logging of 180,000 miles is surely a tribute to Diesel engineering progress of which any man would be proud.

Mr. Adolphus Busch III, elder son of August A. Busch, will now head the Busch interests, and will come into the stewardship of the high ideals and standards which are the richest endowments of his forbears.

Frank W. Kennedy, Vice-President and General Manager of the De Laval Steam Turbine Company, Trenton, New Jersey, died at his home at Yardley, Pennsylvania, on January 24, 1934, after a short illness. Mr. Kennedy was born at Pittsburgh, Pennsylvania, in 1876, and attended the Shadyside Academy of that city. He was graduated from Princeton University with the degree of Civil Engineer in 1898, and thereafter occupied positions successively with the Pennsylvania Railroad at Altoona, the U. S. Steel Corporation, at one of the Ohio subsidiaries, and the Dravo-Doyle Company, Pittsburgh. In 1908 he became General Manager of the De Laval Steam Turbine Company at Trenton, and in 1916 was elected vice-president. He was a director of that company and also president and director of the American Bauer-Wach Corporation, with offices in New York. Other connections included membership in the Executive Committee of the Machinery Builders Society, the Society of Naval Architects and Marine Engineers, the Trenton Club, and the Trenton Country Club. He was vice president of the Wilbur Trust Company, and a director of the First Mechanics National Bank, Trenton, New Jersey.

The passing of **David E. Skinner** will be mourned by countless friends of this dean of Seattle's shipbuilding history.

Mr. Skinner became associated with John W. Eddy in 1897, founding the partnership which lasted close to two-score years. The peak of their combined careers was probably the huge operations of the Skinner & Eddy Shipbuilding Company during the wartime construction boom when thousands of workers made the daily trek to the S. & E. yards in South Seattle.

Mr. Skinner was a native of Michigan and a graduate of the College of Asheville in North Carolina. He was sixty-six years of age.

● SAN FRANCISCO MOURNS OLD-TIMER

In recording the passing of **Captain Henry Peterson**, one reflects on the life of a man rich in San Francisco maritime lore. What changes came under this man's vision during his seventy-one years as a waterfronter!

For Henry Peterson was born at Stewart and Howard Streets back in '63, the son of a whitehall boatman. His career, if properly chronicled, would present a colorful history of the San Francisco Embarcadero from the days of sailing ships to present-day liners. As a young man he held the record as the world's greatest oarsman and his fame as a champion sculler was international. Returning from his triumphs abroad, he started his own launch company and had the distinction of owning the third gasoline launch on San Francisco Bay.

The company prospered under his leadership and he built up a notable fleet of launches, tugs, and work-boats. He retired from actual business management about 1918, but maintained his friendly contacts with his old-time "shipmates" until the end. His was a familiar figure on the floor of 'change, where his reminiscences of more picturesque days were ever a joy to his listeners.

San Francisco loses much of its deepest traditions of past glory in the departure of this venerable link in the chain of golden memories.



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MARK HOPKINS

OR

**THE FAIRMONT
HOTELS**

OVERLOOKING

SAN FRANCISCO

Pacific Marine Review

APRIL 1934

MODERN TIMES DEMAND MODERN EQUIPMENT



The U.S. Coast Guard Adopts the **KELVIN-WHITE Spherical COMPASS** FOR THEIR NEW 165-FOOT PATROL BOATS

The U.S. Coast Guard has authorized us to install a pair of our modern Kelvin-White SPHERICAL COMPASSES on each of the 19 new 165 ft. patrol boats now under construction at Pusey and Jones, Wilmington, Delaware; Defoe Boat and Motor Works, Bay City, Michigan; Lake Union Dry Dock Co., Seattle, Washington; Manitowoc Shipbuilding Co., Wisconsin; and the Marietta Mfg. Co., Point Pleasant, Virginia.

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OF THE PACIFIC COAST

Geared Turbines

Hold the Records

IT IS conclusively demonstrated that geared turbines for the propulsion of ships requiring 3000 hp. or more develop more power and more speed from a given space and weight and from a given first cost and expense for fuel than can be obtained from any other form of power equipment now available.

Numerous De Laval equipped vessels, in both commercial and naval service, such as the DIXIE (here shown), EL OCEANO, MALOLO, YARMOUTH, NEW YORK, BOSTON, MUNARGO, etc., and a long list of U. S. Scout Cruisers and Destroyers attest the entire reliability and smooth operation of De Laval Turbines and Gears.



De Laval Steam Turbine Co., Trenton, N. J.

Pacific Marine Review

The National Magazine of Shipping

VOLUME XXXI

APRIL, 1934

NUMBER 4

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*Official Organ
Pacific American
Steamship Association*

James S. Hines
President and Publisher
Bernard N. De Rochie
Vice-Pres. and Manager

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*Official Organ
Shipowners' Association
of the Pacific Coast*

Alexander J. Dickie
Editor
M. J. Suitor
Asst. Editor

Chas. F. A. Mann, Northwestern Representative, 1110 Puget Sound Bank Bldg., Tacoma, Washington.

In New York copies of Pacific Marine Review can be purchased at the news stand of I. Goldberg, 42 Broadway; and the news stand of Jacob Fuchs at 17 Battery Place at 25c per copy.

Winches turned, tow lines tightened ... an hour of strain ... and the "Tai Yin" slid into deep water!

A Tribute to Modern Salvage Methods and Good Towing Hawsers

The 10,000 ton motorship "Tai Yin" went ashore in a dense fog the morning of Wednesday, March 14th, 1934, five miles north of Point Reyes, California. The West Coast Salvage Co's tug arrived that evening and put a line aboard. The Coast Guard cutter "Shoshone" arrived next on the scene. Haviside Derrick Barge No. 4 arrived about 6 o'clock Thursday morning.

Going in close to the wreck, Haviside No. 4 lost no time in dropping five anchors, weighing a total of 72,000 pounds—the anchor cables weighed 130,000 pounds. Her anchorage was as solid as on a concrete base ashore. The barge then put three towing lines, weighing 36,000 pounds, aboard the "Tai Yin." The Barge crew also put lines aboard the "Tai Yin" from the tugs and cutter. All this was done in the space of two hours. At a given signal Haviside No. 4, tugs and cutter all pulled simultaneously. The powerful winches on Haviside No. 4 reeled in the heavy towlines—strain was maintained for about an hour—something had to give—it couldn't be either the Barge or the tow lines—the hull be-

gan to waver—slowly the "Tai Yin" with 8,000 tons of valuable cargo aboard slid into deep water—just twenty-four hours after she went ashore, and just three hours after Haviside Derrick Barge No. 4 started to work.

Much credit is due to the up-to-date Haviside No. 4 and her powerful salvaging equipment. Much credit is also due to Harry Haviside for his masterful direction—but the job was a decided tribute to the three stout towing hawsers made of American Wire Rope.

Haviside Derrick Barge No. 4 is equipped with four towing winches and four of the two-inch American Wire Rope towing hawsers—in fact all of its rigging is American Wire Rope. It takes real wire rope as well as superior knowledge and experience to handle salvage jobs.

American Wire Rope is made on the Pacific Coast by the Columbia Steel Company, a subsidiary of the United States Steel Corporation, who maintain offices and warehouses in the principal Pacific Coast cities.



"SAN FRANCISCO NEWS" PHOTO—

Haviside No. 4 pulling off "Tai Yin" which went ashore near Point Reyes.

Pacific Marine Review

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Editorial Comment » » »



Shipping and Shipbuilding

IN shipbuilding 1934 appears to be opening as a distinctly motorship year. Considering ships of 1000 gross tons and upward, ordered during January and February, we find that there are a total of 41 such vessels, aggregating 172,000 shaft horse power. These figures show a great improvement over last year's shipbuilding orders, and it is claimed that if orders continue through the year at the same rate, the world's shipbuilding plant will be working on practically 75 per cent of its normal annual output before the year is finished.

An interesting comparison is offered by the breakdown of these figures into motorships and steamers. Twenty-four out of the 41 vessels are motorships, with a total gross tonnage of 181,000 and a total shaft horsepower of 136,000, while seventeen are steamers with a total gross tonnage of 60,400, and a total shaft horsepower of 36,000. Since two of these steamers are 15,000 ton tankers, ordered by the Standard Vacuum Transportation Company from the New York Shipbuilding Company, it would appear that the fifteen steamers remaining average 2000 gross tons and 2000 horsepower and probably are largely coal burners for European Coastal services.

All of the twenty-four motorships listed are on order in European shipyards, twelve in British yards and twelve on the continent. They include two passenger liners, ten tankers, four cargo liners with some passenger accommodations, seven cargo ships, and one fast passenger ferry. The tankers are all for a speed of 11½ knots, and eight of the cargo vessels will run 16 knots or better.

Among the world's shipbuilding nations America is at the bottom of the heap so far as merchant ship construction is concerned. At present the bids for ship construction in United States yards are approximately double the cost of comparative vessels in European yards. A modern cargo liner of 16 knots speed, 10,000 tons deadweight carrying capacity, and first class accommodations for 10 or 12 passengers, would cost today

in European yards from \$1,900,000 to \$2,300,000. This difference in cost represents from \$125,000 to \$200,000 per year in fixed charges, and illustrates the main reason why American ship operators cannot compete in world trade routes without some form of financial assistance from the federal government.

We will very soon be facing the necessity of a large cargo ship and tanker replacement program. We are now opening in Congress a discussion of new policies on ship subsidies. Shipowners would do well to keep Congressmen reliably informed on future needs of the American Merchant Marine.

"Ships work for their own countries, just as railroads work for their terminal points. From every standpoint, it is unwise for the United States to rely upon the ships of competing nations for the distribution of our goods."

—Theodore Roosevelt.

Vapor Spirals on the Gulf Stream

CAPTAIN A. G. Cameron, of the British motor ship *Montrolite*, reports that on February 9, 1934, the ship was crossing the Gulf Stream about 100 miles eastward of Diamond Shoal Lightship, steering 345 degrees with a fresh gale from the north with rain; the temperature of the air was 44 degrees Fahrenheit, and the sea 67 degrees Fahrenheit. At noon the ship had made about twenty miles northing, the wind had increased to a whole gale, and the rain turned to driving snow. This, with vapor rising in spirals from the sea, made visibility impossible. About 3 p.m. the sky cleared overhead; a black cloud bank encircled the horizon to an altitude of about 30 degrees. As the sun shone through, "the rays striking the spiral spouts of vapor on the sea turned the scene into one that could be likened to Dante's *Inferno*." The snow had stopped, the air temperature dropped to 25 degrees, and the sea was 70 degrees Fahrenheit. The great banks of black clouds held their position, excepting fragments seemingly torn adrift, which were carried in ragged strips across the sky. When the stars came out those around the zenith seemed to have double their normal magnitude. The vapor spiral clouds rising from the sea increased as the difference in temperature between air and sea increased. At 10 p.m. the temperature of the sea water dropped to 52 degrees Fahrenheit and the vapor gradually disappeared. Captain Cameron

states that he has often observed vapor in the vicinity of the Gulf Stream in the winter time but never to such an extent as described above.

Second Officer E. W. Glines, of the American steamer Tejon, Captain J. M. Tosh, desires to thank the thoughtful northbound shipmaster who used his searchlight on the morning of February 9, 1934, in the Gulf Stream off Cape Lookout. The weather was overcast, northeast gale prevailing with a heavy sea; thick fast-moving vapor was rising in spirals from the sea to mast-head high, and it was impossible to hear another vessel's whistle. But owing to the cautionary expedient of the searchlight on the northbound steamer her position was made known when a fair distance away.

NOTE: It is a good navigational hint to practice the use of the searchlight when its beams may be seen above a low-lying fog or vapor.

[U. S. Hydrographic Bulletin]

"We must encourage our Merchant Marine. We must have more ships. They must be under the American flag, built, manned and owned by Americans."

—From President McKinley's last public address.

Britons Appreciate San Francisco Generosity

ARRIVING in London on January 31, the ss. Viking Star reported the extreme Christmas generosity of the Seamen's Church Institute, of San Francisco. There being fifty-nine of a crew, and the vessel being in that port on Christmas Day, exactly fifty-nine Christmas boxes were distributed on board, every member being the recipient of one, from the captain to the cabin boy. The following is an example of what each box contained:—Gillette razor, a tube of toothpaste, a tube of shaving cream, a pair of socks, three handkerchiefs, writing paper, envelopes, a "housewife," a propelling pencil, a packet of cigarettes and one of sweets; also shoe laces. Most of the crew averred that they had never possessed so many useful things at once. It is also appreciated that they were not asked to listen to a sermon in return for the presents. On the contrary, the representative of the Seamen's Church Institute who delivered them quietly disappeared after advising an officer as to their distribution. This Institute is already famed for its lavish gifts of books and magazines, to which seamen confidently look forward, but these unexpected and generous Christmas gifts have many times multiplied that appreciation, so seldom found at sea, of "sky-pilots." Truly, a little action is worth a thousand sermons.

[Nautical Magazine, Glasgow.]

"It is simply a truism to say that we must have an American Merchant Marine. We must have ships if we would expand our exports on sound lines, and we must have them as an auxiliary to our national defense."

Twenty-Five Years Ago

Pacific Marine Review for April 1909 carried a strip add along the left side of the front cover wherein Seattle Brewing and Malting Company "exporters of celebrated Rainier Beer to Japan, China, and the Philippines" declared, "As the Japanese army can testify, there's new vigor and strength in every drop."

Other interesting adds were:

Barneson-Hibbard Company Shipping and Commission Merchants operating steamers from San Francisco to Siberia, North China, Nome and St. Michael;

Portland and Asiatic Steamship Company with steamers leaving Portland for Hongkong every three weeks;

Pacific Mail Steamship Company operating steamers Mongolia, Manchuria, Korea, Siberia, China, aggregating 100,000 gross tons;

L. H. Coolidge, naval architect at Seattle;

The Babcock and Wilcox Company, Pacific Coast Branch, Charles C. Moore, Manager;

The Parsons Marine Steam Turbine Company, Ltd., "is prepared to grant licences in the United States for the building of Parsons Turbines for the purpose of marine propulsion";

The Robert Dollar Company, Shipping and Lumber, steamers Bessie Dollar, M.S. Dollar, Stanley Dollar, Hazel Dollar, Melville Dollar, Harold Dollar, Grace Dollar;

—and—

Pacific Marine Review "first established and only exclusive marine paper published on the Pacific Coast."

In the text we find recorded that oriental commerce amounts to more than four billions per annum almost equally divided between exports and imports of which the United States' share is approximately 5 per cent of the imports and 10 per cent of the exports;

That large steamship companies were feeling the depression—Hamburg-American Steam Packet Company, Cunard, North German Lloyd, Kosmos Steam Navigation, and others report no dividends, operating profit not being sufficient to meet depreciation; ,

That Toyo Kisen Kaisha reported a deficit;

That an Osaka Shosen Kaisha representative was arranging the entrance of six cargo steamers in the trans-Pacific trade out of Tacoma in connection with the Chicago, Milwaukee and Puget Sound Railway;

That some very interesting problems were being solved in the design of the anchor windlass and the mast winch (American Ship Windlass Company) for the magnetic survey vessel, Carnegie, then building at the yard of the Tebo Yacht Basin Company, Brooklyn to the designs of Henry J. Gielow, naval architect;

—and—

That Craig Shipbuilding Company, Long Beach, California, was low bidder on tenders invited by the Port of Portland for two steel hull tugs for Columbia River bar service.

Pacific Marine Review has carried the banner of Pacific Coast shipping uninterruptedly for 31 years.

Rehabilitation of The American Merchant Marine

By Henry H. Heimann

Director United States Shipping Board Bureau

There are four uses of a merchant marine in which the nation is vitally interested.

First is the regular and dependable carriage of our sea-borne commerce. Traditionally, trade follows the flag, and experience has shown the undesirability of depending on other nations to perform this service for us. If we are to have assured continuity of facilities, we must have merchant ships flying the American flag. Without this control, we may find that foreign countries for various reasons may at any time withdraw their ships from American trade routes, thus leaving our American exporters and importers to suffer the consequences. Sometimes the reasons for these withdrawals are to be found in wars, such as the withdrawal of ships during the Boer War, and the World War, and not infrequently do we find that economic struggles, or even labor disturbances such as the British Coal Strike of 1926, eliminate foreign ships from sailings. Such experiences as these have proven costly in times of peace, but in a sense—and indirectly only—they have been beneficial, for they have demonstrated to us in no uncertain terms the wisdom and necessity of having enough ships of our own to transport at least a reasonable portion of our over-seas trade.

A second peace-time use of the merchant marine is for trade development, as distinguished from the ordinary carrying of goods for which the market already exists. Foreign shipping companies which are constantly seeking new markets for their own nationals could hardly be expected to be diligent in their search for new business for American industries. Only recently, the Secretary of Agriculture declared that unless we recapture our foreign markets, fifty million acres of American farm land will have to be withdrawn from cultivation. It is evident that the merchant marine problem reaches far beyond a problem that may be confined to the shipping industry. As a matter of fact, the welfare of each and every citizen is more or less linked with the merchant marine. We are at the moment endeavoring to expand our over-seas trade, and have established a new organization within the Government to seek in some instances to lend a helping hand in the matter of financing these operations. I need hardly suggest that in recovering old markets or creating new ones, the possibility of holding such markets is somewhat dependent on whether or not we are able to develop our own merchant marine so that these markets can be serviced and our goods transported in ships flying

the American flag.

There is a third value of the merchant marine, and that is one of stabilization of ocean freight rates. When we have our own ships, we in effect have a certain measure of insurance as to the reasonableness of transportation costs. To the shipping and travelling public, a strong national merchant fleet is a powerful safeguard against exorbitant charges.

As to the fourth or war-time value of a merchant marine, the old saying that "A navy without a merchant marine is a navy in name only" seems to sum up the entire situation. How could the Navy be expected to conduct a major campaign without the support of adequate auxiliaries drawn from the merchant fleet? Tankers, colliers, supply transports, refrigerator ships, auxiliary cruisers, ammunition ships, cable ships and other craft are promptly requisitioned from the merchant marine in time of national crisis. Available units are tagged by the Navy in advance, and plans are always ready for their quick conversion to military use in case of emergency. It might also be frankly stated that our present supply of efficient units suitable for service as naval auxiliaries is inadequate. This presents a strong argument for a comprehensive replacement program, aside from the very sound commercial reasons for the development of an adequate merchant marine.

I have emphasized the need of an American merchant marine both from the trade and military point of view because, while I realize the need is obvious to those intimately concerned with commerce and shipping, those who have indirect or merely casual contact with the industry frequently do not appreciate the far-reaching consequences of a merchant marine and the important part it plays in our commercial development.

The need of financial assistance to the ship operator is rather universally recognized. The problem that now presents itself is to lend this assistance so as to bring about a sound rehabilitation, and make the investment of the Government worth while. It is not so much the amount of the subsidy, but rather its justice or injustice that is of concern and interest to the American citizen. This means, therefore, that the subsidy principle should be one that will place the American operator upon a par with his foreign competitor.

A new ship subsidy policy has been proposed by the Shipping Board Bureau. This program is the result of careful study, and we believe it is sound.

[Please turn to Page 108]

Some New Elements in American Foreign Trade Policy

By Willard L. Thorpe

Director, Bureau of Foreign and Domestic Commerce

Once upon a time, according to an old French fable, the citizens of a small village appeared before their priest and asked him to offer up a prayer for relief from a drought which had plagued them all summer. The priest agreed to pray for rain, and suggested that the most auspicious date for the shower would be the following day—a Monday. A stalwart farmer said that of course he wanted rain, but he protested about Monday because he was planning to cut his hay on that day. Tuesday was found equally unsuited, since this was the day on which the women of the town hung their wash out to dry. A Wednesday rain would spoil the street fair; while a Thursday deluge would make a bad start for a wedding fiesta scheduled to take place. On Friday a gay picnic had been planned, so, in spite of considerable urging from those who had not been invited, this day was also ruled out. The medieval equivalent of a football game made Saturday unsuitable, and of course it was out of the question to ruin the Sunday promenade. So the flock went home, the prayer was never offered, and the drought continued.

This is a perfect picture of the situation which has determined our foreign trade policy for years. The result is, of course, a high all-round tariff and a protective policy for those branches of industry which can muster sufficient strength to prevent the rain in their own area, even though arguing vigorously for rain anywhere else.

It is unfortunately extremely apparent that we seldom think of foreign trade in terms of national policy. One of my privileges is to meet many American business men. Among those who come to my office are many who plead with great earnestness for some form of protection from foreign competition, the closing of some part of our market to the foreign product. And in even greater numbers come those who tell sad stories of their troubles in making entry into the foreign market. The same two groups are in every foreign country. Neither group has any realization that its own demands have any implication to the other. It is this partial view of the problem that holds us back. And the drought in foreign trade continues.

● Noticeable Improvement

There has, of course, been a noticeable improvement in foreign trade in the last twelve months, although the upward movement began at such a low level that the doubling which has taken place still leaves us at a point far below the level of recent years. This improvement is due primarily to two things:

First, the increased business activity which is mak-

ing itself apparent throughout the world;

Secondly, to our own recent monetary history.

The period of last summer, while the dollar was declining, witnessed a rapid increase in imports and an improvement not quite so spectacular in our export trade. This phenomenon is to be explained by the simple fact that people in this country, fearing further decline in the value of the dollar in foreign currencies, were doing advance buying abroad, while at the same time individuals in foreign countries, seeing their currency go up in value, were delaying. However, while this is the effect to be expected while the dollar was depreciating, once it had depreciated and settled on a fairly constant level—which is, of course, what the revaluation has meant—the influences began working in a decidedly different way, stimulating American exports and curtailing American imports.

The devaluation of the dollar has amounted, in a sense, to an automatic increase in our own tariff barriers and the reduction of tariff barriers abroad, although, of course, it has no effect on such arrangements as quota restrictions, sanitary regulations, import licenses, and the like.

From the immediate point of view of recovery, the resulting favorable balance of trade is perhaps desirable, inasmuch as it results in considerable employment in this country. However, such a condition in our foreign exchange of goods cannot be supported as a desirable long-run policy. It is too much like our record in the past, when we made every possible effort to obtain exports and built up a tariff barrier to hold down imports. This was a fairly satisfactory policy as long as we were a debtor nation, and were paying interest in large amounts each year on sums which had been loaned to us by foreign countries. In this situation, a favorable merchandise balance of trade was desirable, for it made possible the balance of all payments entering into the exchange market.

● Basic Situation Changed.

It is hardly necessary for me to comment on the way in which the basic situation has changed since the War. We suddenly woke up to find that we were a creditor nation instead of a debtor. We no longer were making net payments of interest on loans originally advanced to us from abroad, but were rather endeavoring to collect on loans which we had made in foreign countries. Our merchandise trade continued to show exports larger than imports, and the balance, as you know, was made up by the ingenious process of advancing the purchase money for our goods ourselves. This process

humorously called "investment," has somehow lost its appeal to the American public!

The position of the present Administration on this problem of balance is relatively simple. It realizes that the limiting factor both on the return of our foreign investments and on any further development of exports, is the volume of our import trade. There seems little hope of any considerable development of such invisible imports as foreign travel, use of foreign shipping and the like. It believes that foreign trade is vital to our welfare, that the acceptance of certain imports will not cause as much disequilibrium as would be the result of permanent withdrawal of millions of our agricultural acres, the disintegration of our factories, our railroads and our ships. As a constructive step, the President has asked for power to tear away certain of the barriers on the highways of world trade, and make reciprocal treaties granting concessions to a given foreign nation, if that nation will grant corresponding concessions to us. This is the heart of the Bill now pending in Congress.

● Export-Import Banks.

Supplemental to this legislative step is the position which the Administration is taking in offering specific assistance to foreign trade. The newly created Export-Import Bank for encouraging trade with Soviet Russia, and the second bank now being organized with a similar purpose for Cuban dealings seem prophetic of further banking facilities sponsored by the Government to encourage world trade. One contribution of such banks will be the providing of machinery to supply what may be called "intermediate credits." A volume of potential trade has been sacrificed, it is felt, because of the fact that foreign purchasers are asking for credit extending over an eighteen-months' to three-year period. This does not fit into our commercial bank structure, nor are the transactions of a sort that can be financed by a bond issue. The Export-Import banks can step into the breach here and supply a gap in our financial mechanism. I do not believe that they will take the fatal further step and act as "Santa Claus, to hand out presents here or abroad." They will not, in other words, take over the function of the American holder of foreign bonds. Created in response to a demand of temporary expediency, these banks may take a permanent place in our foreign-trade mechanism. The charter of the banks is written in broad terms, and their president has indicated many times that he is planning to finance the seller. Presumably this means that the man who has found a long credit purchaser in a foreign country can discount his loan, thus replacing his working capital during the period. That this will greatly assist foreign trade rests on the assumption that, in a great many instances, the thing which prevents a foreign sales is the fact that it will tie up working capital, rather than that a considerable risk is involved. The bank would discount the paper, thus easing the financing, but the exporter having a contingent liability would still bear the risk.

● Insurance Arrangements

A further function which the banks can perform is in absorbing some elements of the risk through some form of insurance arrangement. Obviously by bringing various risks in various foreign markets together in a

single place, it is possible to develop some actuarial procedure for pooling the risk. No announcements have been made yet concerning this development, and it is impossible to say whether it will follow the lines now existing in so many foreign countries, or whether some new type of facility will be provided.

An additional activity which may be entered into by the banks is in their capacity as a trading corporation. It may well be that these organizations, by entering into direct barter with agencies in foreign countries, can thus avoid some of the complications which now are completely stopping foreign trade; for example, foreign exchange restrictions.

In discussing the work of the Export-Import Banks, you will notice that it may be summarized as work relating to certain specific transactions. Credit is advanced to Mr. Smith to sell road-building machinery in Algeria; certain specific pails of lard may be exchanged for certain specific bags of coffee. That the Government is eager to do all it can to help in these specific transactions is apparent. However, there still remains the problem of eliminating or reducing trade barriers and of improving general trade arrangements. No amount of assistance to the exporter can avail if the foreign country has flatly declared that the maximum entry shall be, shall we say, 25 automobiles per month.

● Mutual Trade Agreements.

The vogue of reciprocal agreements, however deplorable some may consider it, is only natural. We must expect that a nation will not relish imports without some guarantee that it will not be embarrassed when the time comes to pay for them. The most certain insurance against an obligation of this sort is a simultaneous export amounting to about an equal sum of money. Call it barter if you like, but it seems to be working. And so long as America stays out of the fold we reap none of the benefits. Over a hundred reciprocal trade agreements in the rest of the world were reported to us in the first nine months of 1933. It is time for the United States to get into the picture.

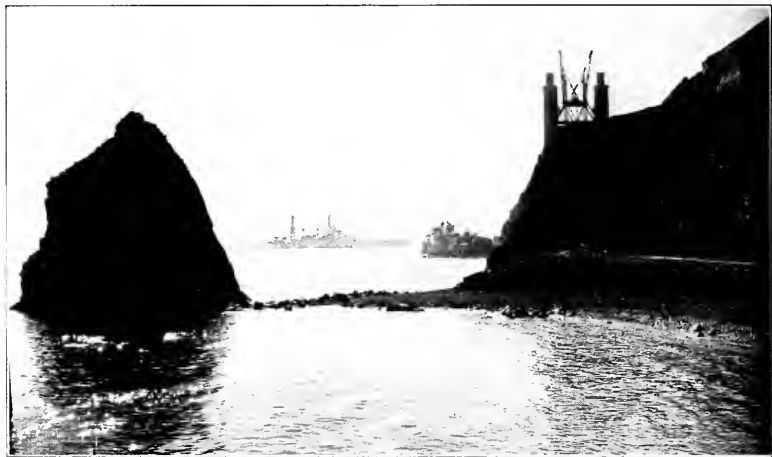
It can not be denied that the United States will have great bargaining potentialities when and if it enters into reciprocity negotiations, because of our capacity for consuming the products of the rest of the world. Repeal of prohibition has also opened up a new field of imports into this country. But the problem of determining these mutual concessions will not be an easy one. If wisely done, the permitted imports would lead to very little domestic disturbance, while the resultant exports would increase employment notably. Having in mind the net national gain, and employing all the rich resources of information in the Government, it should be possible to obtain a clear benefit to the country from the proposed policy.

I feel most strongly, in spite of the inevitable wailing and gnashing of teeth from a few limited areas where a little rain may fall if tariffs are lowered and foreign competition is sharpened, that the embarkation of the United States on a reciprocity policy will be a bright spot on the, for many years, dull horizon of our foreign trade.

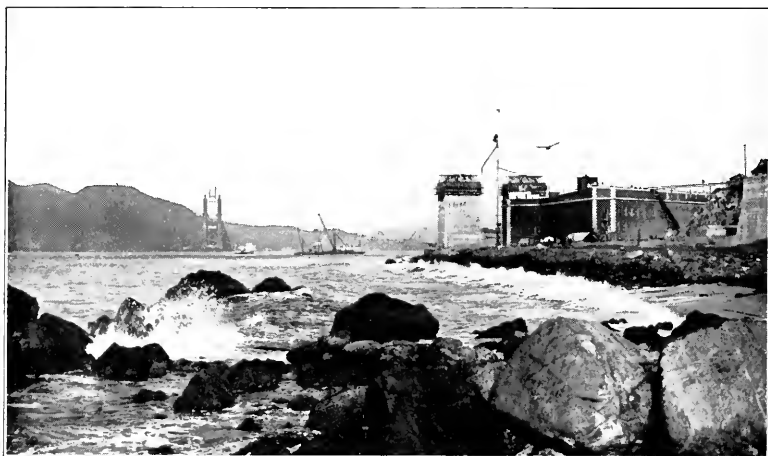
[Abstract of an address delivered March 15th before a luncheon meeting of the National Foreign Trade Council India House, New York.]

Changing Familiar Contours

*Gigantic Face Lifting Operations Alter Appearance of
the Golden Gate*



These interesting pictures illustrate how the construction of the new Golden Gate bridge, now about 30 per cent complete, is changing the sky and shore lines at the world famous entrance to San Francisco bay.



(Our thanks to Standard Oil Company of California for photos and to Western Machinery and Steel World for cuts.)

More American Liners Needed

A Statement Based on Observations in Great Britain

By P. A. S. Franklin

The British Government, Cunard Line and White Star Line have concluded an arrangement under which the two companies are to be merged and the British Government will advance to merged companies £9,500,000 for completion of the new Cunard steamer No. 534, for working capital and for possible additional steamers, thus forming a powerful British National line to compete with American flag steamers in the North Atlantic.

In coming to the arrangement for the merger of the two lines, the International Mercantile Marine Co. is convinced that its rights in connection with the shares of the Oceanic Company have been grossly violated and we have instructed our lawyers in England to apply to the courts for an injunction to restrain the Oceanic Company, the Cunard Company and others involved, from proceeding with the merger. The International Mercantile Marine Company holds all the shares of the Oceanic Company as security for the balance of approximately £2,350,000 still due them for sale of the White Star Line. Without consulting us and without any meeting of the share holders, the directors of the Oceanic Company entered into an agreement on December 30 last with the British Government and the Cunard Company. We were not advised regarding all the details of this agreement until Feb. 7, 1934, after it being announced in the press. Our consent to terms of merger, which are very unfair to Oceanic Company and very beneficial to the Cunard Company, was then asked and we declined to give it.

The Oceanic Company directors have now informed us that they propose carrying out the merger without the approval of their shareholders. We do not wish to be even remotely interested in a British National line, as our desire is to develop under the American flag exclusively. It is perfectly obvious that the new merger is nothing more or less than a British National line backed by the British Treasury to the extent of about \$50,000,000.

If we are to keep our American ships on the North

Atlantic and upbuild and develop our position in this vital route with new ships, we must have the full financial support and cooperation of the United States Government just as our competitors will receive such help from the British Government. If the American merchant marine is to compete on equal terms with those of Great Britain, France, Germany, Italy and the other great powers, it must have substantial help and protection from our government. Consequently you may readily realize how gratifying it was for me to learn of the President's attitude revealed in a statement issued March 13 in which he wisely favored definite assistance, offering real encouragement to all those who like myself have been working for years to establish our merchant marine on a plane where it can compete with foreign ships on a basis of equality.

It is a matter of record that for years the International Mercantile Marine Company has been striving to rid itself of all ships operating under other than the American flag. As a consequence of my negotiations abroad, I feel justified in predicting that within a short period the International Mercantile Marine Company will attain its long cherished ambition to operate American flag ships only.

A tremendous interest is manifested abroad in the efforts of President Roosevelt to overcome the depression. They realize that their own economic destiny is linked with ours. All large nations are building up their merchant marines, and, I regret to say, are outstripping the United States in this respect in preparing for the return of prosperity. We should be building ships of the Washington and Manhattan type right now. Our company is preparing to go ahead with construction of such transatlantic liners and new ships for other important trade routes as soon as the government signifies its willingness to aid and protect us. Preliminary plans for new steamers have already been drawn and await approval.



In their competition with subsidized foreign flag liners like the North German Lloyd liners Europa and Bremen, American shipowners need to be assured of continued governmental aid and protection.

Marine Engineering Progress

A Survey of Recent Developments

● **New Boiler Water Treatment.** Very extensive experimental studies were made recently on samples of feed-water and scale taken from many United States naval vessels in widely separated locations. Eight samples were taken from different places in the feedwater cycle on each of twenty vessels. Analysis of these samples revealed two illuminating facts: first, normal naval practice maintains water in boilers at or near the lower alkalinity limit of 0.1 per cent (2.9 gr. per gallon); second, a large part of the feed water contamination is not due to condenser leakage or evaporator carry over, but accumulates while the reverse feed water is stored in double bottom tanks.

In order to test out commercial and experimental treatment of boiler water, a 600-pound working pressure boiler was designed to produce conditions similar to, but of much greater intensity, than those prevailing in naval practice. Two of these boilers were built and practically all types of treatment were investigated including the colloidal, the coating, the electrolytic and the chemical methods.

The result of this series of experimental tests is a uniform formula for a boiler compound recommended for naval use and consisting of disodium phosphate 47 per cent, soda ash 44 per cent, cornstarch 9 per cent. The cornstarch was proved to be a great deterrent to foaming, priming and carry-over, and is useful also in making boiler sludge non-adherent. The Bureau of Engineering has designed a new testing cabinet which greatly simplifies determination of alkalinity, chloride, and hardness. Complete instructions for the use of formula and testing cabinet have been issued in a revised edition of Chapter Six of the Manual of Engineering Instructions. (Abstract of article by Lieutenant Commander Thorvald A. Solberg and Captain Robert C. Adams, Junior, in *Combustion*, December, 1933.)

● **Hollow Turbine Blading.** C. A. Parsons & Co., Ltd., of London have developed a successful method of manufacturing turbine blades hollow from end to end. These blades are rolled from the solid billet of stainless steel, the root being integral with the blade, and the hole having the same profile as the blade but slightly tapered so that the wall is thinner at the top than at the base. The hollow formation is produced in the rolling process without brazing, welding or soldering. The first blades of this type were fitted to the rotor of one of the 50,000 K.W. Parsons turbines in the Dunstan Station of the N.E. Electric Supply Co., Ltd., and similar blades are being used in the new 30,000 K.W. turbine of the Southwick Station of the Brighton Corporation.

This blade weighs 25 per cent less than the solid blade and for equal centrifugal stresses can be run at 15 per cent greater speed. (*The Engineer*, London, January 15, 1934.)

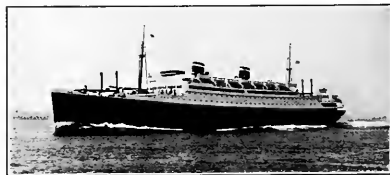
● **The Brown Boveri Turbloc.** Brown Boveri & Co., Ltd., of Switzerland have designed a unit for the ordinary cargo ship, consisting of main propulsion geared

turbines with condenser and all the necessary engine room auxiliaries, to be manufactured in sizes from 1800 to 10,000 H.P. The plant described and compared in the original article is for 2000 horsepower at a propeller speed of 75 revolutions per minute. Steam conditions are 285 pounds gage superheated to 750 degrees Fahrenheit, and a vacuum of 28½ inches. Steam consumption is about 7.9 pounds per shaft horsepower hour; weight, including all auxiliaries, 40 to 45 tons; fuel consumption, 0.67 pounds per shaft horsepower hour with Scotch firetube boilers, or 0.622 pounds per shaft horsepower hour with Velox watertube boilers. (*The Marine Engineer*, London, December, 1933.)

● **Multiple Diesel Electric Drive.** In a recent lecture before the Institution of Mechanical Engineers, London, no less a diesel authority than H. R. Ricardo outlined an installation of 75 high speed diesel electric sets each of 100 horsepower to provide propulsion in a vessel needing 5000 shaft horsepower, and claimed great advantages in weight, space, cost, operating economy, and flexibility over a single engine direct connected to propeller shaft.

● **Diesel Tanker Performance.** The Sun-Doxford engineered tanker *Mercury Sun* of the Motor Tankship Corporation entered service, March 5, 1932, and on her arrival at Baltimore, October 14, 1933, had completed 13 round voyages between Delaware River or Chesapeake Bay and San Pedro, California, and one round voyage between Bayway, New Jersey, and Houston, Texas, logging 131,318 nautical miles and transporting 185,483 tons of cargo. During this period, she was 520 days at sea, and 68 days, 21 hours, in port. Her shaft horsepower is 2800 or a single screw at 80 revolutions per minute. She is 497 feet 10 inches long, over all, with a molded beam of 65 feet 9 inches, a depth of 37 feet, a loaded draft of 29 feet and a full load displacement of 20,437 long tons of which 14,791 tons is deadweight carrying capacity. Her designed sea speed is 11 knots.

A summary of the log of the 14 voyages shows an average sea speed of 11.52 knots; and average daily bunker fuel oil consumption of 12.32 tons for all purposes, and an average daily lubricating oil consumption of 13.89 gallons for all purposes. Fuel consumption per brake horsepower hour for the main engine is 0.37 pounds. (Abstract of article, *Marine Review*, February, 1934.)



Maintaining an Adequate American Merchant Marine

By Daniel C. Roper, *Secretary of Commerce*

As an economic necessity, the foreign trade development of the United States depends largely upon the use of American ships for carrying American goods. It is essential that we maintain an American Flag tonnage on important trade routes, to serve the needs of our commerce and to safeguard against war and other emergencies which might disturb the normal flow of American commerce.

But it is not alone from the competitive and essentially economic standpoint that we must view the development of our merchant marine. The merchant marine is an important and, we may safely say, an indispensable factor in our national defense. Obviously, it is not practicable to maintain within the navy all the vessels which might be necessary in event of war. To do so would require a huge outlay of tax-payers' money and might tend to encourage unnecessary defense expenditures.

Speaking generally, the same types of ships which are necessary from the commercial standpoint in time of peace are required from the defense standpoint in time of war. Our World War experience is a striking testimony to the value of an adequate and efficient merchant marine and conclusive proof of the handicaps imposed and excessive expenses incurred through the lack of an adequate merchant marine. Upon the entrance of the United States into the World War, we had to depend to a great extent upon foreign ships for transport and military purposes and for the import and export of raw materials and manufactured products. Much of this transportation had to be done at an excessive cost to the American Government and also was a severe handicap to naval and military operations.

Thus, from both the commercial and defense standpoints, it would seem that for the economic self-respect, the military self-respect and the pride of the Nation, an adequate and proper development and maintenance of an American merchant marine is a fundamental necessity.

● Distribution of Cost

The practical question in view of these conditions, which early arose and is still before us, is the way in which the labor and other extra cost inequalities, as previously described, can be met or equalized so as to permit the building and sustaining of a requisite merchant marine. An equally important aspect of this question is the necessity of fixing the amount of the subsidy at a point where it will equalize these differentials and stimulate rather than discourage private initiative.

We can readily see that nationality determines the political and economic conditions under which a ship operates. The owner of an American vessel buys his repairs, employs part of his labor, and in some cases all of it, part of his supplies, and, frequently, the ship it-

self, in the protected domestic market characterized by the costs incidental to a high-living standard. His stock in trade is ship's space; which he sells in an unprotected, competitive world market. Naturally the ship operator looks to the national interest which may be inherent in his business to neutralize any resultant handicaps.

● Subsidies Necessary

We all insist that we must maintain our standard of living as against the lower living standards of other countries, and, by so doing, we automatically impose a handicap upon American ship owners. The best answer that Congress has worked out to this problem of meeting differential costs and expenses, is to have the federal government supplement the larger costs for our country with money from the Federal Treasury. The question then arose: What is the safest and most effective manner of putting this principal into practicable operation? Congress decided to let this excess cost represent service rendered by the American shipping lines in carrying the mail and has seen fit to designate this financial aid as ocean mail pay or a subsidy. Funk and Wagnall's Standard Dictionary defines a subsidy as: "Pecuniary aid directly granted by government to an individual or commercial enterprise deemed productive of public benefit."

Webster's New International Dictionary defines subsidy as: "A grant of funds or property from a government . . . to a private person or company to assist in the establishment or support of an enterprise deemed advantageous to the public." Applying these definitions to the merchant marine, we may say that the subsidy in this case is a payment of funds from the government to American ship operators to offset the lower costs of ship-construction and operation in foreign countries, so that American vessels may be placed on a sounder competitive basis in the world market. Merchant marine subsidies take the form of ocean mail pay and government financing of ship-building and shipping operations to the extent that private business is unable to supply or provide.

Unfortunately, the Federal Government has not been industrious enough in its efforts to enlighten the people on the subject of subsidies and this use of public funds; and many people probably think that the subsidy is nothing more than the compensation which transportation lines get for carrying the mail. It is not that, but rather a method for actually building a competitive American merchant marine.

Even with the much lower costs existing in other maritime nations, our chief competitors have found subsidies necessary in order to build and maintain their merchant marines. Great Britain, France and Japan,

with their much lower costs, have found subsidies necessary to maintain their commercial fleets for both economic and national defense purposes. It should not be difficult to understand, therefore, that a subsidy policy is essential in the building and maintenance of our merchant marine, at least until a better method is developed.

● What Form of Subsidy?

When we have accepted the necessity for a merchant marine subsidy, we then face the question of how this money is to be most wisely spent, how the treasury is to be safeguarded in these expenditures, and just what form these subsidies should take. When public funds are to be expended in as large quantities as those needed to maintain our merchant marine, the public is entitled to know what policy the government has adopted and why such a policy is necessary. The question of subsidies comprehends, therefore, a study of the complete scope of the shipping and foreign trade activities of the United States.

The designation of payments made to ship operators by the government as "ocean mail pay" is somewhat misleading. "Mail pay" is a misnomer, for payments are not made primarily as compensation for carrying the mail. If they were, these payments would only be a fractional part of what they are at present. Hence, it would seem to me, that there would be less misunderstanding if these payments were clearly and frankly designated as direct subsidies.

A private company operating an essential trade route under the American Flag would require a capital investment and a continuing cost which, against foreign competition, would give no hope of a reasonable return over a period of years, but which would result in heavy losses instead. Consequently, the government of the United States determines essential trade routes and agrees to assist the ship operator by sharing in the venture through a "contract service" or subsidy payment.

● How Subsidy Is Determined

First, as already explained, we have the excess cost of construction in this country, as one of the items which the government might seek to amortize partially. In the second place, we have the considerably higher cost of seamen and other labor as compared with foreign countries. Then we have the third factor of the subsidies given by foreign countries to their ship operators. After these facts are carefully weighed, the

differential costs determined and an agreement reached that the trade route is an essential one, the government then, in effect, says to the ship operator: "We are absorbing a part of these additional costs in order that you may operate and develop this essential trade route." The payments made by the government for this purpose are subsidies.

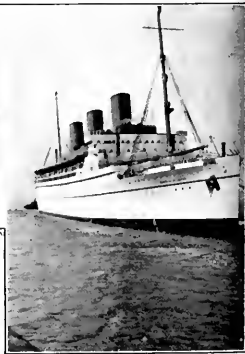
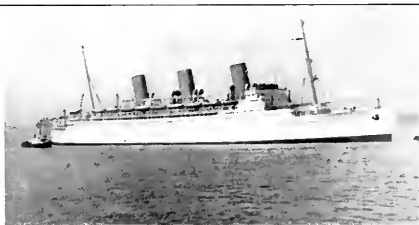
Since the transfer of the Shipping Board to the Department of Commerce as a regular bureau of the Department, the Secretary of Commerce is charged with the responsibility of fostering the development of our Merchant Marine. After a study of the country's shipping policy in effect during the post-World War period, I am convinced that we must initiate a sounder and more adequate merchant marine and subsidy program. To accomplish this objective, there are several major considerations which it seems to me deserve careful attention.

We all stand for fair and equitable competition in all lines of trade and commerce, but we all know that competition can be carried to such extremes as to destroy the purpose for which proper competition is designed. For instance, when the government supports one line of ships on an essential trade route through subsidy payments, it is very foolish and destructive to make loans to enable other lines to build ships and engage in commerce in competition with the very lines which the government is already supporting, and through which it is trying to build a merchant marine.

● Control of Competition

Inasmuch as government aids to shipping have as their objective the establishment of an efficient and ultimately a self-sustaining merchant marine, the essential trade routes to be served should be determined by analyzing the flow and volume of traffic with due consideration to such other factors as defense requirements, trade policies, and industrial and agricultural needs. When these requirements are determined, government aid should be given to ship lines necessary to fulfill these requirements and aid should be withheld from any other domestic operators seeking to enter into direct competition with the line already receiving government aid.

It seems to me that the present system of aid in the form of compensation for the carrying of ocean mails might properly be replaced by specific subsidies granted for the maintenance of essential services. The sub-



The palatial passenger liner Empress of Japan illustrates British and Canadian determination to maintain leadership in North Pacific trade.

sidies granted should be based on differentials in building and operating costs, but should be flexible enough to permit adjustments as changes in conditions and circumstances may warrant. Furthermore, subsidies should not be granted to more than one line competing in the same trade route.

In order to facilitate the proper handling of subsidies, two broad classifications of subsidies might be made: First, a subsidy to cover the differences in ship building costs so long as Governmental policy provides for compensation for this differential; and, second, a subsidy to offset the difference in operating costs with competing foreign companies. The governmental agency administering the subsidy should also have discretionary authority to make allowances in the national interest to meet exceptional trade developments. With these factors as a basis, subsidy payments could be made with maximum equality, because some operators would have the major requirement of a construction subsidy, others on operating subsidy, and another, perhaps under certain conditions, a trade-development subsidy.

● Application of Subsidies

The application of this subsidy policy must take into consideration present conditions in the merchant marine industry and a proper audit and check-up on merchant marine as a safeguard to government expenditures. In respect to the latter requirement, the government should have authority to examine books at frequent intervals of the creditor companies, establish uniform accounting, and scrutinize carefully all items of cost. On such data readjustments of the direct subsidies or cost differentials can and should be made at annual intervals.

In a special study of shipping trends conducted by the Transportation Division, Bureau of Foreign and Domestic Commerce, in connection with its economic survey of a proposed ship canal, the following facts were developed:

The fleet of sea-going steamers under American registry in the World War era was expanded from 2,000,000 gross tons in 1914 to 13,500,000 gross tons in 1921. Most of this additional tonnage was constructed during that period, part of it was acquired by purchase of American and foreign ships and part of it through seizure of interned enemy vessels. Not all of the tonnage acquired was suitable for commercial use and a considerable portion of it was never so employed. A considerable amount is either laid up or sold. Even at the time it was built, this war time tonnage was not up to date in type. At the time, quantity of production was the primary consideration.

This war time fleet, far from modern at the time it was acquired, is still the backbone of our American Merchant Marine and constitutes the great bulk of our seagoing tonnage.

● American Cargo Vessels Obsolete

Since the war period, there have been additions to the American tanker fleet and a number of American combination type vessels have been built, largely with Government assistance. But, with only one or two exceptions, the American freighter fleet was built during the War construction period.

Since the war, rapid strides have been made in ship construction, particularly with regard to more economic

propulsion, coupled with a definite trend towards increased speed. For instance, when compared with the general run of machinery installed during the war period, a modern high pressure, super-heated steam engine installation would operate, if at the same speed, on 35 to 40 per cent less fuel.

Tonnage acquired in the war period cannot be estimated to last more than 8 to 10 years more and may be retired much faster if faced with competition of many ships of the newer types.

● Progressive Replacement Necessary

Unless provision is made for progressive replacement of most of our concurrently operated vessels, the passing of American shipping from foreign trade appears certain from one or both of the following causes:

First, the end of the present economic depression and attendant world trade revival will see the construction of a number of modern type vessels under foreign flags, with which our tonnage cannot compete on equal terms. Second, at the end of 8 or 10 years, our war-built tonnage will be so obsolete that it will be retired very rapidly and its business pass into foreign hands.

It seems clear to me that the subsidy is only a part of the problem of developing an adequate merchant marine. The shipping acts reflect the intent of Congress that the shipping industry should be properly regulated. Without such regulation, no subsidy, however well administered, can accomplish its intended purpose. The subsidy must not be used to cloak inefficiency. The communities served by American shipping lines must supplement governmental aid and support by doing everything within their power to encourage and promote business on these American lines. In the past, many of our seaport communities have failed to do their rightful share in supporting and maintaining the merchant marine.

The United States can expect to attain the highest degree of efficiency and progress in our merchant marine activities only if the ship operators and the communities served by our shipping lines fulfill in every sense their responsibilities which are fully as great as those of the government.

● Complete Cooperation Needed

What is needed here as elsewhere is complete cooperation among the agencies affected in attaining results for the common good. Our shipping bottoms are entitled to have proper consideration in transporting goods made possible through the new agencies for the development of trade with Russia and other countries where our government is providing special credit assistance.

From these facts, we can readily determine the scope of the merchant marine problem which faces the United States today. At the same time, the United States, as a member of the world family of nations, is eager to fulfill its responsibilities for the development and maintenance of desired international trade and commerce. We approach, therefore, the solution of these problems on the broadest possible basis, determined to meet our national responsibility while bringing our best efforts to bear upon cooperative international aspects as well. To these ends I solicit the cooperative thinking and cooperative action of all concerned, particularly those definitely related to shipping and marine activities, in promoting our commerce and thus helping to build a greater United States.

Revised Ship Subsidy Policy

Report of a Study made by Henry H. Heiman, Director of the Shipping Board Bureau and Transmitted to Congress with Approval of President Roosevelt

By Daniel C. Roper
Secretary of Commerce

Because American shipbuilding and ship-operating costs are the highest in the world, due to superior standards of living in the United States, continued Government aid is necessary in order to offset the competitive handicaps encountered by American ships operating in foreign trade. This aid, which should be placed on a more rational basis than the system now in effect, can be given either in the form of (1) preferential treatment by means of tariff or tax exemptions, or (2) by direct subsidies.

● Preferential Treatment

This form of aid, used by Great Britain in achieving her maritime supremacy, and also by the United States in the early days of the Republic, is predicated on the contention that in the control of the cargo factor lies the only hope of building up a strong merchant marine, and that direct subsidies do not necessarily mean cargoes.

Under the preferential tariff plan, goods imported into the United States in a ship of alien flag, from a country other than that under whose flag the ship operates, would pay a higher tariff than similar goods imported in an American ship. In the case of the United States, a great importing country, this form of aid would doubtless prove highly efficacious. The Shipping Act of 1920 carries a provision for preferential tariffs, coupled with a direction to the President to give notice of the abrogation of all reciprocal treaties in conflict therewith. While this is still the law, it has never been put into effect.

Objections offered to the preferential tariff policy rest not so much on any doubt as to its efficacy as upon

SUMMARY OF RECOMMENDATION

1. The present system of linking subsidies with the carrying of mail should be abandoned, and in its place specific subsidies granted for the maintenance of essential services should be given. Such subsidies should not be extended to lines in the protected trade.
2. Subsidy contracts should be based on the differentials in building and operating costs, should be sufficiently flexible to permit of equitable readjustment as changes in conditions occur, and should provide for necessary replacements.
3. Subsidies should be divided into four classifications:
 - a. Construction differential subsidy.
 - b. Operating differential subsidy.
 - c. Trade penetration subsidy.
 - d. Other conditions bearing on the issue, such as foreign subsidies, etc.
4. Money for subsidies should be appropriated from general treasury funds, and not as at present provided, indirectly through some other Department of the Government.
5. Subsidies should not be granted to more than one line competing in the same trade route without the business volume justifies it. We, of course, would not wish to limit sound competition, but destructive competition should not be aided through subsidies.
6. The preceding proposals contemplate uniform cost information at all times available to the Government, and regulatory power over subsidized lines or construction companies.
7. Administration of subsidies. Subsidies to be recommended through a joint committee of experts, representing Government Departments having a direct interest in the development of the merchant marine. It is suggested that representatives of the Commerce, State, Treasury and Navy Departments would effectively coordinate the Government's interest. The actual administration of each subsidy contract once entered into, however, should rest in the Department of Commerce.

The new subsidy policy should be gradually introduced, replacing old subsidy contracts in fairness and equity, and if possible through mutual agreement, to prevent demoralization of the industry. There should be competitive bids on all subsidies.

the fear that such a course would lead to reprisals by other countries.

Another suggestion for aiding American ships by means of preferential treatment involves a graduated tonnage tax which would favor liners operating on fixed schedules, and would thus tend to minimize tramp competition.

It is believed that any form of Government aid which savors of discrimination, real or fancied, would (because of possible international repercussions) prove less desirable than a system of direct subsidies. At the moment such aid could scarcely be initiated nor expected to supplant subsidy payments.

● Direct Subsidies

A study of the results of the country's shipping policy during the post-war period shows that its objectives have been only partially attained. Growing obsolescence of the fleet; inadequate provision for replacements; the prevalence of wasteful practices throughout the industry; and, in recent years, an over-conservatism in the exercise of the Government's regulatory function are but a few of the causes which have impaired the competitive position of American vessels in the foreign trade.

The development of a more effective subsidy policy must,

therefore, in fairness to the country and the industry, be accompanied by a sound program of rationalization. Desirable amalgamations should be encouraged. A more effective use should be made of conference agreements, and of the other broad powers of regulation delegated by Congress. Better coordination between shipping and

other forms of transportation, such as rail and inland water carriers, should be brought about, as well as the coordination of all Governmental agencies dealing with the merchant marine. Excessive costs assessed against shipping enterprises by parent companies, subsidiaries, and affiliates should be abolished. Without rationalization along the lines indicated, no system of subsidies will be able to develop and maintain an adequate and permanent merchant fleet.

Inasmuch as Government aids to shipping have as their objective the establishment of an efficient and ultimately self-sustaining merchant marine, the essential trade routes to be served should be determined by analyzing the flow and volume of traffic, with due consideration to such other factors as military requirements, trade policies, industrial and agricultural needs, and the public interest generally. Differentials in costs of ship construction and ship operation should continue to form the basis for computing the amount of Government aid required for each subsidized line. The differential in domestic and foreign construction costs is the major competitive disadvantage which the subsidy is designed to remove.

Under the present mail contract system, the Government has not participated adequately in the various construction programs, and has therefore not maintained even a semblance of control over the price of ships, notwithstanding that the construction differential has in each case been used as a factor in computing the amount of subsidy awarded.

In view of the above the following recommendations are made:

- (1) The present system of aid in the form of compensation for the carriage of ocean mails should be replaced by specific subsidies granted for the maintenance of essential services, but should not be extended to lines in protected trades.
- (2) Subsidy contracts should be based on differentials in building and operating costs, should be suffi-

ciently flexible to permit of equitable readjustment as changes in conditions occur, and should provide for necessary replacements.

- (3) Subsidies should be differentiated in three broad classes: (a) A subsidy to cover the construction differential; (b) A subsidy to cover the operating differential; and (c) A trade penetration subsidy.
- (4) Money for subsidies should be appropriated from general Treasury funds and not, as at present, be provided indirectly through some other Department of the Government.
- (5) Subsidies should not be granted to more than one line competing in the same trade.

● Shipbuilding Cost Differential Subsidy

This form of subsidy, paid to the shipowner either as a lump sum on completion of the ship, or in fixed installments (the terms to be determined at the time of the agreement) would bind the owner to operate the vessel in a designated service or services, under the American flag, and to comply with any other requirement stipulated by the Government.

Should the subsidy be paid in installments, the number and duration of the payments would be limited to the estimated useful life of the vessel. Provision could be made to disallow payments for inactivity in excess of a stipulated period, and for discontinuance of payments and possession of the vessel by the Government for more serious violations of contractual obligations.

In consideration of the benefits accruing to builders, they too should be parties to subsidy agreements, and together with owners should be required to maintain uniform cost accounts, to be rendered to the designated Governmental authority in approved form, and to submit to examination of records when so requested by authorized representatives of the Government.

While the shipbuilding cost differential subsidy would as a rule apply only to future ship construction, consideration should be given to the advisability of compensating, through a modified form of ship-building



Motorship Chichibu Maru and other splendid trans-Pacific ships of the Nippon Yusen Kaisha are the products of Japan's wise subsidizing policy.

subsidy, owners who are carrying high differential charges on account of vessels built during recent years.

● Operating Cost Differential Subsidy

Subsidies under this head would be granted to operators of American flag vessels in the foreign trade who contract with the Government to maintain service of a stipulated character over a fixed period, and would be based on the operating differentials which handicap the American operator.

Contracts involving operating cost differential subsidies should provide for payments by the Government at stated intervals, and should also provide that the Government or the operator may at any time, and should at stated periods, initiate a review and possible revision of the amount of subsidy originally agreed upon. Except in cases where extraordinary handicaps or peculiar advantages, due to traffic or other conditions, justify a modification of standard practice with regard to subsidy awards, the amount granted should cover only the actual differential in physical operating costs, and should not take cognizance of such items as equipment and supplies for passenger ships; repairs, materials, services, or supplies contracted for abroad; interest on indebtedness or invested capital; insurance; depreciation; damage claims or administrative charges. The operator should be compensated for the carriage of mail on a poundage basis, and should be required by the terms of the subsidy contract to set aside an adequate reserve for depreciation. As in the case of shipbuilding cost differential subsidies, the operator should also be required to maintain, and to make available to the Government, in approved form, records which reflect the financial results of operations.

Operating cost differential subsidies might well take into account the disadvantageous conditions surrounding ship operators who compete for trade in new fields, as contrasted with operations conducted in well-established services. In determining the amount of subsidy for operators engaged in what may be described as "trade penetration", due allowance should be made for the peculiar conditions involving lesser cargoes and other handicaps, under which they compete with foreign lines long entrenched in the particular trade. In the present system of mail subventions the trade penetration factor may have been somewhat abused. To prevent a recurrence of this situation, consideration should

be given to the establishment of a definite trade penetration subsidy, to be used only in special cases justified by the foreign trade policy of the Government.

● Procedure

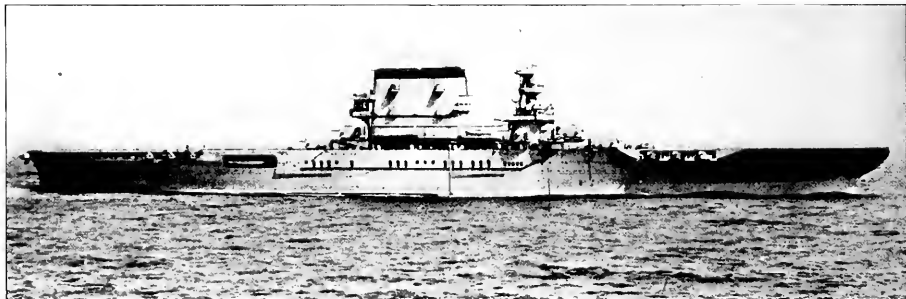
The system of direct subsidies should be administered through a joint committee of experts representing Government Departments having a direct interest in the development of the merchant marine. A Ship Subsidy Committee composed of representatives of the Department of State, Commerce Department, Treasury Department and Navy Department would effectively coordinate the Government's interest in matters of policy and in the final determination of individual contracts. Administration of each subsidy contract in all its details should, however, rest in the Commerce Department.

Introduction of any new subsidy program should be gradual to prevent demoralization of the industry and for competitive reasons. The following procedure is suggested:

- (a) Determine the type of subsidy and method of administration.
- (b) Determine the services to be subsidized.
- (c) Provide shipping lines now subsidized with opportunity to accept the new subsidy plan where it is found that these lines are entitled to such treatment. Cancel subsidy contracts of shipping lines found not to be entitled to aid, giving due consideration to the interests of the company involved.
- (d) Present operators of subsidized lines who are unwilling to continue under a new subsidy shall have existing mail contracts cancelled. Due consideration should be given to their interests and the interests of the Government before inviting bids from or negotiating with other operators.

● Competitive Bidding

The Department of Commerce shall announce vessel and service requirements for routes to be subsidized and awards will be made on the basis of competitive bidding. Responses will be compared with data prepared in the Department in order to determine the reasonableness of bids. Provision should be made which will permit the waiving of public bidding in the event only one qualified company is competent to bid on a particular service.



From the national standpoint one of the chief reasons for subsidizing the merchant marine is that subsidy is the most economical method of insuring necessary naval auxiliaries in time of emergency. Even a giant like the Saratoga is useless without adequate supply and transport vessels to connect with the home base.

Financial Aspects of Stevedore Accidents

By Frank C. Gregory,

*Safety Engineer, U.S. Employees' Compensation Commission,
Washington, D.C.*

The shipping industry as a whole, and the stevedoring division in particular, has been slow to accept the proposition that its industrial accidents can be controlled to its profit. The purpose of this paper is to show the present costs and how this information may be used within a company organization as an incentive to accident prevention because of its economic merit.

With the enactment of the first State Workmen's Compensation Laws in 1911, industry and insurance carriers were given their first accurate measuring stick of the direct cost of injuries resulting from industrial accidents. The compensation principle makes it possible to give a fairly definite average value to each type of accident, and this sum can be considered as saved by the company which lowers its former accident rate. The Longshoremen's Compensation Act has been in effect for nearly seven years, and furnishes information upon which to base average accident costs of stevedoring injuries.

In theory, under workmen's compensation, the total cost of accidents can be passed on to the consumer in the increased cost of goods and services. Practically, this can be done only when the accident cost of the individual companies closely approximates the average cost of the industry. Under keenly competitive conditions, the part which can be passed on is set by the low cost operators. The competitors must absorb the difference.

● Average Cost High

The average cost of stevedoring accidents is high, to the disadvantage of the shipping industry where it must compete with other forms of transportation, or in foreign commerce in competition with lower cost countries. Differentials between competing ports may be of great importance. Taking the average stevedoring cost as one-quarter of the total operating cost of a vessel, the cost of stevedoring accidents is probably more than 5 per cent of the cost of ship operation.

The average cost of accidents is made up of a very wide range of individual costs, the spread between the highest and the lowest being greater than the average for the stevedoring industry. When this average cost is more than 15 per cent of the labor cost, the results upon the net earnings of the high cost company are evident.

The direct compensation cost is only a part of the total cost of the accidents which produce compensable injuries. There is time to merely call attention to the indirect costs of these accidents. Mr. H. W. Heinrich in his book "Industrial Accident Prevention" gives in detail the losses which arise from this source. He found, for general industry, that this cost was four times the cost of compensation and medical service. Because of the high average cost of longshore injuries, this is probably too high a ratio for stevedoring.

With this statement of general considerations as an

introduction, the subject will now be narrowed to the accident costs in the Port of New York. Information on the number and cost of dock accidents is too limited to use. There are probably two dock injuries for every three shipboard injuries if all dock workers handling cargo are considered. The experience under the Longshoremen's Act for shipboard injuries is available, and it is used here as the basis of the costs which are given.

● Cost of Stevedore Accidents, Port of New York

For the past five years the rate for insuring compensation costs under the Longshoremen's Act in New York has been more than 15 per cent of the payroll and has been rising. Conservatively, then, more than 10 per cent of the total cost of stevedoring has gone to pay for the direct cost of accidents. Total numbers of accidents and total dollar costs for the port are hard to tie to company experience for comparison. So an attempt will be made to state accident cost on a man-hour basis.

There is not enough information on the number of man hours worked on shipboard in a year to compute an accurate frequency rate. There is enough basis for the statement that this rate is more than 100 lost-time injuries per million man hours worked. The rate of 100 is used here to illustrate the seriousness of the condition which exists.

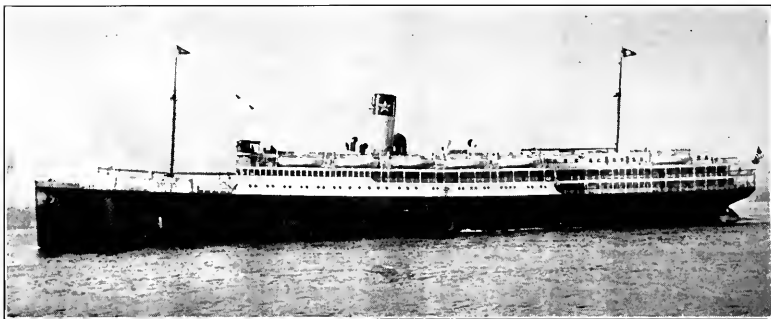
A million man hours represents 400 men working eight hours a day for 313 days. A frequency rate of 100 tells us that during that time one of each four will receive an injury severe enough to cause him to lose time from work beyond the day of the injury. The injuries to longshoremen are more severe than for other industries, the figures here being the actual five year average of the port. Four hundred regularly employed longshoremen received 100 injuries a year, classed as follows:

- 20 disabled seven days or less, no compensation;
- 65 temporary disability, average nine weeks;
- 14 permanent partial disability, average 44 weeks;
- 1 fatal, average cost to employer \$6,000.

These 100 cases cost, for compensation and medical treatment, \$37,800, or \$378 for each time a lost-time injury occurred. This average accident cost is based on a sufficiently large number of cases so that it should be applicable to all employers, except where definite measures have been taken to control the causes of the serious accidents.

The rate of the individual companies varies over a wide range, probably from a frequency of 30 to one of 300. The probabilities are that the one with the lower rate has also avoided the more severe injuries. But on the same cost per accident basis, if stevedore A has a rate of 30 at the head of the list and stevedore Z is at the bottom with 300, after each had worked a million man hours, stevedore A's compensation bill will be \$11,340, while his competitor Z will find that his is \$113,400.

(Please turn to Page 124)



Morgan Line coastwise turbine steamer Dixie.

Pioneering High Pressure at Sea

During the past decade, much has been written and said about the application of high pressure steam and high superheats to the main propulsion power plants of ocean-going vessels. Within that period, and particularly during the latter half of it, many improvements have been made in the design, the materials, and the arrangements of marine type water tube boilers, marine turbines, and marine reduction gears. These improvements have made practical the use of higher pressures and higher total temperatures in steam, with resultant increased economy and lower machinery weights.

Auxiliaries to marine power plants have also received a great deal of intelligent consideration and have been materially improved in economy of drive, in efficiency of function, and in compactness and weight factors. This is particularly noteworthy in the case of electric drive for auxiliaries which has made tremendous progress.

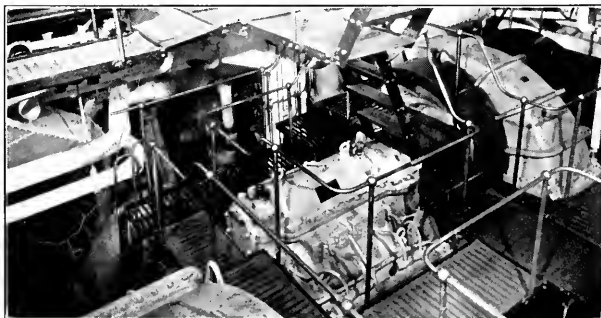
The net result of these improvements is a better all around economy in ship operation that has been of much help to the world's ship owners during the great depression, and on the present fight back to normalcy.

Since we owe so much to these improvements, it

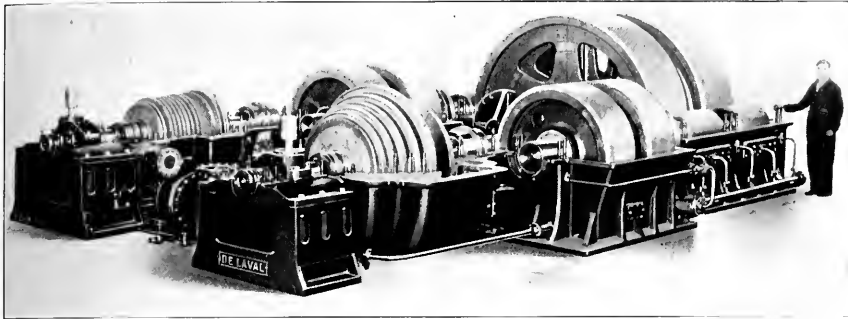
seems opportune just now to give due credit to the first high pressure turbine steamer in regular ocean service and to record her experience in actual service. The vessel credited with this leadership is S.S. Dixie of the Southern Pacific Steamship Lines. This steamer was contracted for in 1926, launched in the summer of 1927, and placed in commission in January, 1928, from the yards of the Federal Shipbuilding and Dry Dock Company at Kearney, New Jersey. A complete description of S.S. Dixie and her machinery equipment and furnishings will be found in Pacific Marine Review for 1928.

She is a single screw steamer with hull of the hurricane deck type, having a straight stem, semi-elyptical stern and two pole masts. The hull is built on the Isherwood system of longitudinal framing with three complete steel decks fore and aft. Her principal dimensions and characteristics are as follows:

| | |
|-------------------------------------|---------------------|
| Length overall | 445 feet |
| Length between perpendiculars | 427 feet |
| Beam, molded | 60 feet |
| Depth, molded, saloon deck | 37 feet |
| Depth, molded, main deck | 29 feet |
| Mean loaded draft | 25 feet, six inches |
| Normal shaft horsepower | 7100 |
| Max. horsepower | 8000 |
| Designed sea speed | 15¾ knots |
| Gross tonnage | 8188 |
| Net tonnage | 4918 |
| First class passengers | 279 |
| Third Class passengers | 100 |
| Crew | 103 |



Portside engine room S.S. Dixie showing low pressure turbine and first low pressure reduction gear.



Shop view of De Laval compound turbine with double reduction gear shown with upper half of casing removed.

The propelling machinery consists of one set of cross compound turbines, driving the single screw shaft through double reduction gearing. This entire unit was designed and built by the De Laval Steam Turbine Company of Trenton, New Jersey. It comprises one high pressure turbine and one low pressure turbine, each connected through flexible couplings with its high speed pinion. Each of these pinions engages an intermediate speed gear wheel mounted on a shaft with its intermediate speed pinions. Both intermediate speed pinions engage the low-speed gear wheel, whose shaft is coupled directly to the line shafting. Astern turbines connected in series are arranged on the exhaust ends of the high pressure and the low pressure ahead turbines.

The normal rated horsepower of this unit is 7100 at a turbine speed of 3250 revolutions per minute, corresponding to a propeller speed of 90 revolutions per minute. The astern turbines are figured to generate two-thirds of the full rated ahead horsepower.

Steam for the main turbines, and the auxiliary machinery is supplied by four oil-burning, small-tube type Babcock and Wilcox marine water tube boilers. These boilers have a total evaporating surface of 21,180 square feet, and a total superheating surface of 2048 square feet. Each boiler is fitted with 5 Cuyama type oil burners. Steam is supplied at throttle pressure of 350 pounds per square inch with a superheat of 200 degrees Fahrenheit.

The boilers are arranged for operation under forced draft which is supplied by two 78 inch, three stage bladed, Sturtevant forced draft fans, driven by Sturtevant balanced valve steam engines. These fans take suction from the top of the boiler room, discharge through an air heater in the base of the stack, and impel the air into the furnaces at a temperature around 245 degrees Fahrenheit.

When she was placed in commission, January, 1928, S.S. Dixie was operating under higher pressure steam than was then being employed in any turbine vessel in the world in regular sea service. She has now been in continuous sea service for a period of over six years on the regular passenger and freight run between New York and New Orleans. She has covered, during this period, a steaming distance of 360,000 nautical miles at

an average speed of 15½ knots. The entire propulsion plant has operated satisfactorily and economically with exceptionally low maintenance costs. To date no repairs have been made to either turbines, gears, or boilers, except the customary routine of trip repairs and adjustments. On her second round voyage a weighed water test was made and the consumption of fuel for all purposes worked out at 0.69 pound of fuel oil per hour per shaft horsepower. Careful records of her performance since indicate that this very satisfactory fuel economy is being maintained.

Great credit is due to the Southern Pacific Steamship Lines and to their Superintending Engineer, A. S. Hebble, for pioneering higher pressure and higher temperatures in this steamer. That their pioneering vision was correct is clearly indicated by the way in which high pressure steam and high superheats have been applied in turbine drives on recently built vessels by all the major passenger and freight liner services both in this country and abroad.

Merchant Tonnage Shows Slight Decrease

The tonnage of American documented commercial vessels decreased less than one-sixth of one per cent during the quarter ending December 31, 1933, compared with the preceding three-month period.

Figures compiled by the statistical section of the Bureau of Navigation and Steamboat Inspection show that on September 30, 1933, there were 24,873 documented merchant vessels of 14,975,660 gross tons, as compared to 24,860 vessels of 14,954,045 gross tons on December 31, 1933, a decrease of 13 vessels and 21,615 gross tons.

The principal loss in tonnage was in the steam classification. Of this type of craft there were 5,453 vessels of 11,717,166 gross tons on September 30, 1933, and 5,399 vessels of 11,688,249 gross tons on December 31, 1933, a decrease of 54 vessels of 28,917 gross tons.

Sailing vessels were the next hardest hit as to tonnage with a loss of 25 vessels of 5,743 gross tons.

Pacific Marine Book Reviews

*Realizing that Many a Mariner—Ship Operator—Ship Owner or Engineer
like Chaucer's Clerk "Would liefer have at his beddes head,
Twenty bookes clad in black or red"*

We Suggest from March Reviews

BRITISH SHIPPING FINANCE.
1934. 660 pages bound in red cloth with gold stampings, published by Fairplay, London. 15s net.

This is the tenth annual edition of Fairplay's justly famous compilation of the financial statistics of British shipping.

It contains much information that has never before appeared in print, outstanding features being: a summary of about 1,000 balance-sheets of British shipping companies covering the last four years; a list of the directors and principal shareholders of 644 British shipping companies, capitalized at £282,000,000; amount due on mortgages; shipping share quotations; shipbuilding, shiprepairing and engineering section, giving building capacity; results of marine account and financial position of British marine insurance companies; shipping sales, with prices, reported in 1933; and coal prices for several years past.

MEN AGAINST THE SEA by Charles Nordhoff and James Norman Hall. 251 pages bound in pale green and silver. Published by Little, Brown and Company. Price \$2.00.

Narrated in a rather detached first person, this saga of eighteen men who traversed thirty-six hundred miles in an open boat somehow fails to assume reality to the reader. (Another proof that truth is stranger than fiction.) It is a tale of incredible heroism and of grave dangers surpassed, but while we read with interest we are left cold to the actual suffering and privation which these strong fellows endured. Captain Bligh alone stands out as an individual. The reader who likes his literature flavored with sea brine and marine adventure will not go wrong in choosing the book, however, for, all in all it is a mighty engrossing yarn.

NON-FICTION

Ships and South Africa by Marischal Murray—Oxford University Press.

The Suez Canal—Its Past, Present and Future by Lieut.-Col. Sir Arnold T. Wilson—Oxford University Press.

Termites and Termite Control by Charles A. Kofoid—University of California Press.

FICTION

A Modern Tragedy by Phyllis Bentley—The MacMillan Company.

Mad Hatter's Village by Mary Cavendish Gore—Alfred H. King.

Sea Level by Anne Parrish—Harper and Brothers.

BREDON AND SONS by Neil Bell. 587 pages, bound in dark blue basket-weave cloth with decorative motif in powder blue. Published by Little, Brown and Company. Price \$2.50.

Another "family" story, which compares somewhat with the histories of the Forsytes and the Whitecoats, but lacks the strength and pageantry in the chronicles of those two famous families of literature, Bredon and Sons deals with several generations of Senwiche shipbuilders. Somehow the characters do not quite ring true, and it is difficult to carry them all in mind, particularly the members of the two main branches of the family of the World War generation. An excellent story, however, and well worth reading.

ROUGH HEWN, THE AUTOBIOGRAPHY OF A MODERN SINBAD, anonymous, 383 pages bound in ultramarine cloth with gold lettering. Published by D. Appleton-Century Company. Price \$2.50.

The autobiography of a man who seemed dogged by an ill-natured fate from earliest childhood, Rough

Hewn is a book which grips your interest and your sympathy. Told in a frank and challenging style, never self pitying, the chronicle is stamped throughout with the character and sincerity of the man whose life it is. Many are the parts he plays: able seaman, castaway, mate and captain under false papers, stockroom clerk, steward, salesman, struggling author; while the reader follows him with absorbed interest. Incredible, but palpably true, this is a book you should not miss.

THE LOG OF THE BETSY ANN by Frederick Way, Jr. 296 pages bound in blue gingham with red printing. Published by Robert M. McBride & Company. Price \$2.50.

An amusing chronicle of life on a riverboat, *The Log of the Betsy Ann*, retails the adventures and misadventures of a young man who finds himself the recipient of an ancient craft as a birthday gift. His attempt to build up and maintain a business in the generally peaceful and gracious manner of the old river days in the face of the modern business world makes good reading.

TREELESS EDEN by Francine Findley. 416 pages, bound in apple-green cloth with black decoration. Published by Alfred H. King, Inc. Price, \$2.50.

The best of the many California novels which have recently appeared, *Treeless Eden* gives us the history of a Sacramento riverboat captain; his stern, land-greedy wife; his daughter, as luscious and warmly beautiful as the state for which she is named; and his illegitimate son, Jim. Jim is the central figure of the book. Brought up in the captain's home, Jim is inculcated with the steel will, the hunger for power and wealth, and the unscrupulous business principles of the captain's (Please turn to Page 127)



Marine Equipment

MOTORSHIP BOILERS ~ EIGHT TON KEEL
NON-CORROSSIVE STEEL ~ 250 TON CRANE

Improved Steam Boilers for Modern Motorship Service

In 1929 the Sun Shipbuilding and Drydock Company at Chester, Pennsylvania, completed the first of a fleet of eleven modern Diesel tankers, each of which is equipped with two Foster Wheeler steam boilers. One of the boilers on each ship is a waste heat muffler boiler which generates steam from the exhaust gases of the 3000 b. hp. Sun Doxford Diesel engines. The other boiler is an oil fired cross drum marine steam generator designed for port service and for heating cargo oil shortly before port is reached.

Two of the tankers, the M. V. Tidewater Associated, and the M. V. Tidewater, were purchased by the Tidewater Oil Company. The M. V. Daylight and M. V. Brilliant are in the service of the Standard Vacuum Transportation Company and the remainder are in the service of the Sun Oil Company. All of

these tankers have been in practically constant service since they were completed. The records of the "Tidewater Associated" show that this vessel has made sixty-three round trips from the Port of New York to the oil fields and return. The log of the vessel now registers a total of 290,000 miles and shows that 7,180,000 barrels of various grades of crude have been carried.

During these many thousand miles of sailing all of the exhaust gases from the Diesel engine have passed through the waste heat boiler. Occasionally there was no demand for steam and the boiler was run dry acting only as a muffler. Most of the time, however, the muffler boiler acted as a steam generating unit, providing steam for the heating of quarters, cooking, cargo heating and operation of auxiliaries. All of the auxiliaries, including cargo pumps, bilge

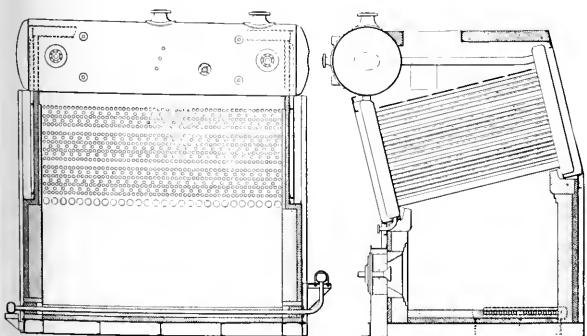
pumps, sanitary pumps and winches, in regular use are steam driven, the standby auxiliaries being electrically operated. The waste heat boilers are designed for a maximum working pressure of 200 pounds per square inch but the operation of auxiliaries has not required steam pressures in excess of 150 pounds per square inch.

This ship usually handles heavy crude which is preheated before being pumped in order to save the pumping costs and to speed up unloading operations, thus permitting the vessel to make more frequent trips. Available steam from the waste heat boiler is used for cargo heating, but this steam is supplemented by steam at 200 pounds per square inch from the 4,000 square feet cross drum boiler about a day before port is reached. The separately fired boiler continues to function throughout the vessel's stay in port during which time the steam from the boiler is also used for the operation of cargo pumps, bilge pumps, winches, galley and the heating of quarters.

Trade Literature

"Modern Centrifugal Pumps for Brewhouses and Cellars" is the title of a new folder put out by the Worthington Pump and Machinery Corporation, Buffalo, New York. The leaflet lists the eight special features of the pumps, with illustrations. Copies may be obtained by writing Pacific Marine Review or the Worthington Corp.

The Worthington Corporation also offers a folder describing the Worthington Air Compressor Units, Type VA-2 for marine repair shops. It is adequately illustrated and contains tables of rating specifications and prices. Copies free upon request.



Transverse and longitudinal sections of the Foster Wheeler oil fired cross drum boiler for port service on modern motor tankers.

Lead Keel for the New Cup Defender

Eighty tons of lead were used in casting the keel of the new America's Cup defense yacht which is under construction in the yards of the Herreshoff Manufacturing Company at Bristol, R.I. This huge mass of metal was poured, during the first week of January, into a keel-casting mold, especially built for the defender. The boat is being constructed by a syndicate headed by Harold S. Vanderbilt for the international match to be held next September. Mr. Vanderbilt will skipper the craft as he did the successful *Enterprise* in 1930. The construction is going ahead on the same ways on which all the other cup defenders, except the *Resolute* of 1920, were built.

Molding the keel is quite a difficult task, principally because of the weight and quantity of the molten metal which must be handled. The slightest carelessness may result in damage which would require the entire job to be done over. Consequently only the most experienced and skilled men are employed for this work. Many of the workmen who handled the pouring have been casting keels ever since the days of the first cup defender, the *Vigilante*, in 1893.

The keel is cast in a 35-foot tim-

ber box. The keel mold proper is the exact size of the keel. On the outside is a layer of dirt rammed down by the workmen, and the whole enclosed by an outer mold held together by iron bolts of one-inch diameter, railroad ties and heavy planking. When the lead is poured, there is a pressure of 3,000 pounds per square foot on all parts of the mold. A break in any portion would mean the dismantling of the equipment and the construction of an entire new mold.

A large smelting pot is placed alongside the ways and pigs of pure lead are piled up nearby. The lead is then melted and poured. It takes about twelve hours for the molten mass to cool and harden. The outer mold is then knocked down and the dirt and inner mold cleared away. The massive bulb of lead which forms the base of the keel is then ready for the bronze under-water plating.

While the lead keel is being cast, the steel frames which shape the hull are being prepared in the shop nearby. These frames are made of bulb angle steel and are bent to the specifications of the designer. Each strip is placed in the furnace and softened. When it comes out of the fire, red-hot and pliable, it is bent

to fit a line laid out in chalk on the floor of the plant.

As soon as the keel molds have been cleared away, the keel plate and frames are attached to the top of the lead keel and the construction of the hull begun. Above the water line the sides of the new defender will be plated with high tension steel.

It is expected that the boat will be ready to take to the water some time in May.

Trade Literature

"Modern Boiler-Feed Pumps for pressures up to 600 pounds" describes the Cameron Type NT multi-stage centrifugal pumps covered by *Ingersoll-Rand Bulletin No. 2078*.

An interesting feature of this pump is the hydraulic balance obtained by placing an equal number of impellers back to back. This results in the elimination of high pressure stuffing boxes. Of the two stuffing boxes used, one is under second-stage pressure, the other is under suction pressure. The casing is split horizontally, allowing the entire rotor to be removed from the pump without disturbing the bearing adjustment, exposing bearings to dirt or moisture, or disconnecting any part of the piping.

A copy of *Bulletin No. 2078* may be obtained from *Ingersoll-Rand Company*, 11 Broadway, New York City.

One of the most notable pieces of shipyard equipment built during 1933 is this huge 250-ton capacity hammer-head crane at Puget Sound Navy Yard, Bremerton, Wash., designed, built and installed by the Dravo Contracting Company. All motors and brakes were supplied by the Westinghouse Electric and Manufacturing Co.



Alloy Steel Defies Salt Water and Air

Marine men are familiar with the rapid corrosion of ordinary carbon steels when brought into contact with salt water spray or salt water and air at the same time.

Following conclusive tests, official and otherwise, the National Alloy Steel Company, a subsidiary of Blaw-Knox, Pittsburgh, Pennsylvania, announces certain of their compositions of alloy steels that will give highly satisfactory results under these difficult conditions.

This same alloy is recommended for use in the presence of acetic, citric, lactic, hydrocyanic, oxalic and tartaric acids and hot oil. It resists oxidation at temperatures up to 1,400 degrees Fahrenheit, and will also withstand the ravages of either dilute or concentrated nitric acid, mine waters, ammonia, hydrogen sulphide and corrosive oils. It is machinable, ductile and weldable.

Other National Alloy castings are being used more and more extensively for their dependable resistance to temperatures up to 2,000 degrees, Fahrenheit, and to abrasion at such temperatures without losing their great strength. The steel, coal, oil, chemical process, paper, or refining, glass, and other industries where intimate processing is a part of production, are turning more and more to alloy steels for castings required to meet specific and difficult conditions.

In order to turn out uniform alloys, all in strict compliance with the specifications, National Alloy uses virgin materials and always under close laboratory supervision.

A Novel Self-Protected Motor

A self-protected motor which cannot burn out is announced by The Lincoln Electric Company, Cleveland, Ohio.

This revolutionary type of motor has a protective device built into the windings. Should the motor be stalled through overloading, should it become excessively hot due to poor ventilation, should it run on single phase, or if for any other reason the motor is blocked this protector shuts off the current and

the motor is saved from damage.

With this device, less supervision of motors is necessary, repair bills are cut, and frequently smaller size motors can be used. Where large capacities are necessary to take care of only infrequent peak loads, a normal capacity self-protected motor may be safely employed. At the high peak loads the protector will automatically disconnect the motor if conditions become dangerous.

A.C. induction self-protected Lincoln motors are built in sizes from $\frac{1}{2}$ to 30 horsepower, for either two or three phase and standard commercial cycles and voltages. Controls are mounted on the motors.

New Quick-Drying Red Lead Primer

Dutch Boy Quick-Drying Red-Lead Primer is a new type of liquid red-lead paint. Primarily it is intended for first-coating iron and steel surfaces which, due to the nature of their service, require a fast-drying paint. The pigment is red-lead ($97\% \text{ Pb}_3\text{O}_4$). The vehicle, which gives the paint its quick-drying properties, is of the synthetic resin type. It will dry for recoating in from two to six hours.

This paint fills a long-felt want for a high-grade protective coating on all iron and steel surfaces which have to be painted in a minimum of time. Because of its quick-drying property, it has been used for several years, in certain localities, in repainting ships. It enables any shipyard to apply two coats of paint in one day.

Over and above this quick-drying quality, this new primer has other important advantages. In the first place it is self-leveling. The paint film is, therefore, of uniform thickness, because of this ability to flow after application. Furthermore, within a few hours and after the coating has become dry and firm, a smooth, even surface will be obtained which will hold well any paint that is applied over it. The dried film adheres tightly to the metal, is very elastic and will stand severe rubbing. On marine service particularly, it is resistant to the softening action of water.

These qualities recommend Quick-Drying Red-Lead Primer for many general uses. It makes an especially good priming coat for all kinds of

machinery and equipment such as pumps, air compressors, transformers, farm implements, automobile fenders, etc., whenever a quick-drying and a smooth finish is wanted.

Red-Lead Primer is packed in gallon cans, five gallon kits and 20 gallon drums. The weight per gallon is approximately 19.3 pounds.

Trade Literature

Bulletin No. 152 on Morris double-suction horizontally-split centrifugal pumps has just been published by Morris Machine Works, who are the oldest American manufacturers of centrifugal pumps, having originated this type of pumping unit seventy years ago.

This booklet explains the details of Morris design, which characterizes their present standard double-suction split-case pumps. Many illustrations show the construction of these pumps, the various arrangements in which they are furnished, typical performance curves and representative installations in industrial plants and municipal pumping stations.

Engineers and operators responsible for successful centrifugal pump service will be interested in a section on the installation and operation of centrifugal pumps and the most common causes of service interruption. Copies of the bulletin may be obtained by addressing Pacific Marine Review.

Catalogue No. 7464 Ingersoll Rand Company describes the Cameron Motorpump, which is now built in twenty-six sizes ranging in horsepower from $\frac{1}{4}$ to 30, and in capacities from 5 gpm. to 1,000 gpm. Certain sizes are two-stage units and some other sizes are fitted with a self-priming attachment, which makes them suitable for use as sump or gathering pumps in mines.

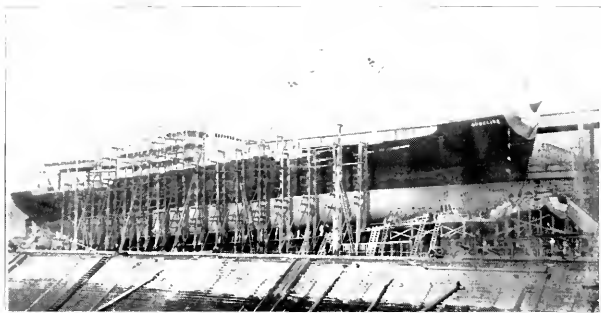
The Motorpump is noteworthy in that it is a complete pumping unit, with built-in electric motor and pump rotor on the same shaft. Because of its perfect balance, almost no foundation is required. It can be operated equally well in any position.

The self-priming Motorpump is covered by a separate bulletin, No. 2070.

Copies may be obtained from Pacific Marine Review.



American Shipbuilding



S.S. Angelina at launching.

NEWPORT NEWS SHIPBUILDING & DRYDOCK COMPANY LAUNCH THE S.S. ANGELINA

Gliding smoothly down the building ways of the Newport News Shipbuilding and Dry Dock Company on February 16, 1934, as though brought to life by the shower from the christening bottle gracefully broken by Miss Carolyn Bull, daughter of Mr. E. M. Bull, president, A. H. Bull Steamship Company, the S.S. Angelina entered her proper element and became the latest addition to the American Merchant Marine.

This vessel built under the supervision of Gibbs and Cox, Naval Architects, is 410' 9" long over all; 390' between perpendiculars; 55' molded beam; 30' 6" molded depth to upper deck at side; 7250 tons deadweight at 24' 6 1/2" draft; 4800 tons gross and 3000 tons net with machinery of 3150 S.H.P. The propeller is 17' diameter and 16' 6" pitch. The sea speed is to be 13 knots. She is a general cargo ship with accommodations for twelve passengers and thirty-six officers and crew.

She has very generous provision for cargo handling gear.

The king-post is fitted with three 5-ton booms, the foremast with two 10-ton booms, three 5-ton booms and a 3-ton boom. The mainmast is fitted with one 10-ton and five 5-ton booms.

Built to American Bureau of Shipping Navigation Laws, the

Steamboat Inspection Service, and the Safety of Life at Sea Convention, she has a bale cargo capacity of about 396,000 cubic feet, a fuel oil capacity of 1015 tons, and a capacity of 120 tons of feed water and 130 tons of culinary fresh water.

The propelling machinery which is located amidships, will consist of Newport News cross-compound turbines driving a single screw through double reduction gears. These turbines are designed to develop a continuous maximum of 3150 S.H.P. at 90 R.P.M. of the propeller shaft. There are two forced draft oil-burning water-tube boilers with a total heating surface of 8000 square feet, and steam pressure of 300 pounds per square inch, fitted for superheat. There are three 15 K.W. steam driven electric generators, and the windlass, winches, steering gear and other auxiliaries are also steam driven.

SPEDDEN AWARDED CUTTER CONTRACT

The Spedden Shipbuilding Co., Baltimore, Maryland, was awarded contract for the construction of a wrought-iron quarantine cutter for the United States Public Health Service at Rosebank, Staten Island, New York. The bid as accepted was \$173,994.00 to be completed in 350 days working time. The cutter will have a length overall of 100 feet, 8 inches; beam over guards of 24 feet, 2-1/8 inches; and draft loaded, 10 feet.

U.S.S. FARRAGUT—DESTROYER 348

The launching of the U. S. S. Farragut at the Fore River Plant of the Bethlehem Shipbuilding Corporation, Ltd., Quincy, Massachusetts, on March 15, 1934, is of particular interest since this vessel is one of the first of a group of destroyers to be built for the U. S. Navy since the completion of the War-Time program in 1920.

The Navy Department has announced that Mrs. James Roosevelt of Brookline, Massachusetts, daughter-in-law of President Franklin Delano Roosevelt, will perform the christening ceremony.

The building of the Farragut was authorized under the Acts of August 29, 1916, July 1, 1918 and July 11, 1919, and was contracted for on December 11, 1931. She is of the 1500 tons standard displacement class, and sister ships are now building at Bath, Maine, and various Navy Yards.

The Farragut and her sister ships have a length of about 340 feet and a beam of about 34 feet, and are designed for a standard displacement of 1500 tons. They are powered with geared turbines and water-tube boilers of the Bethlehem design. Great advances have been made since the previous classes of destroyers in the design of these vessels, enabling higher speed to be obtained at more economical rates for less weight. The vessels are designed to give a long cruising radius, and are fitted with a battery which should make them particularly useful vessels for both attack and defense.

The present Farragut is the third vessel of the name on the rolls of the U. S. Navy; Torpedo Boat No. 11, built in 1896 at the Union Iron Works, San Francisco, California, which is now one of the Bethlehem Shipbuilding Corporation's plants, having been the first. Destroyer No. 300 built in 1917 at the same plant was the second, and it is especially fitting, therefore, that the third vessel be built at the Fore River Plant of the Bethlehem Shipbuilding Corporation, Ltd.

(Please turn to Page 122)

Progress of Construction

The following Report Covers the Shipbuilding Work in Progress at the Leading Shipyards of the United States as of March 1, 1934

Pacific Coast

BERG SHIPBUILDING CO.
foot of 26th Ave., N. W.
Seattle, Wash.

NEW CONSTRUCTION: The building of the lighthouse tender **Hemlock** for the United States Bureau of Lighthouses to be used in the Alaska service. This is a twin screw, steel steamer 174' 6" in length; TE engines, 1000 H.P., WT boilers. Keel was laid April 27, 1933. Launched Jan. 20, 1934. Delivery, no date set. Lengthened M.S. **Discoverer** from 76' to 90'. Raised decks on purse seiners **Coolidge** and **Newport II**.

BETHLEHEM SHIPBUILDING CORPORATION, LTD.

(Union Plant)
San Francisco

DRYDOCK, PAINT, MISCELLANEOUS: S.S. M. Spaulding, S. S. President Wilson, S.S. W. S. Miller, S. S. Antigua, S.S. Makura, S.S. Lena Luckenbach, S.S. Grays Harbor, S. S. Everett, S.S. H. F. Alexander, M.S. Lio, M.S. Standard Service, S.S. Talamanca, S.S. Yorkmar, S.S. Pres. Van Buren, S.S. Johan Poulsen, S.S. Pres. Pierce, Shell Oil Barge No. 5, S.S. Chiriqui, S.S. Pres. Taft, S.S. Pres. Lincoln, S.S. Timber Rush, S. S. Admiral Gove, S.S. Dorothy Alexander, S.S. Mariposa, U.S.S. Salinas, S.S. Admiral Laws, S.S. Richmond, S.S. W.S. Miller, S.S. Point Salinas, S.S. Lake Galewood.

ENGINE AND MACHINERY REPAIRS: S.S. Pres. McKinley, S.S. Pres. Monroe, S.S. Pres. Grant, Tug Gov. Stephens, S.S. Absaroka.

GENERAL ENGINEERING AND DRYDOCK CO.

Foot of Fifth Avenue
Oakland, Calif.

DRYDOCK, PAINT, MISCELLANEOUS: S.S. Manini, S.S. Despatch No. 3, S.S. Chiapas, S.S. Johan Poulsen, Ship Star of Zealand, Barge S. O. No. 2, S.S. Arctic, Yacht Zaca, Garbage Boat Tahoe, Yacht Hermit, S.S. Helen P. Drew, Ship Star of France, S.S. Phyllis.

ENGINE AND MACHINERY RE-

PAIRS: S.S. Davenport, Tug Arabs.

LAKE UNION DRYDOCK & MACHINE WORKS
Seattle, Wash.

NEW CONSTRUCTION: Hull No. 102, no name, U.S. Coast Guard patrol boat; estimated keel laying, March, 1934; estimated launching, April 15, 1934; estimated delivery, Sept. 20, 1934. Hull No. 103, no name, U.S. Coast Guard patrol boat; estimated keel laying, March, 1934, estimated launching, June 1, 1934; estimated delivery, October, 1934; Hull No. 104, no name, U.S. Coast Guard patrol boat; estimated keel laying, April 16, 1934; estimated launching, June 15, 1934; estimated delivery, Nov. 1, 1934.

THE LOS ANGELES SHIPBUILDING & DRY DOCK CO.
Los Angeles Harbor
San Pedro, Calif.

DRYDOCK, PAINT, MISCELLANEOUS: S.S. Point Loma, S.S. Manatawny, S.S. Olympic, F. B. Belle Isle, F. B. San Lucas, Tug Louie Black, S.S. La Brea, S.S. Edwin B. DeGolia.

ENGINE AND MACHINERY REPAIRS: S.S. Diamond Head.

THE MOORE DRYDOCK CO.
Oakland, Calif.

NEW CONSTRUCTION: Caisson No. E3. Cutting Edge for Caisson E3 size 134 ft. 6 in. long x 80 ft. wide by 137" deep, was launched on March 2, 1934, at 12:30 p.m., and is intended for Pier No. 3 of the East Bay Span of the Oakland-San Francisco Bridge. The construction of timber and wailing above the cutting edge will be completed by Bridge Builders, Inc., at the pier site.

DRYDOCK, PAINT, MISCELLANEOUS: S.S. El Aquario, S.S. Texan, S.S. Griffdu, S.S. Mala, SS. Pennsylvania, S.S. Maliko, S.S. Nevan, Yacht Portola, S.S. Katrina Luckenbach, S.S. Lubrico, S.S. California, S.S. Columbian, S.S. Oregonian, S.S. Golden Tide, S.S. Golden Kauru, Missourian, S.S. Santa Cecilia, Standard Oil Barge No. 4,

Launch Despatch No. 4, S. S. Pennsylvanian, S.S. Lansing, S.S. Pulpit Point, S.S. Kadiak, S.S. Californian, S.S. Chirikof, Manulani, Benicia, Western Pacific Barge No. 3, S.S. Stanley Dollar, S.S. Golden Peak, S.S. Golden Wall.

ENGINE AND MACHINERY REPAIRS: S.S. California, S.S. U.S.C. G. Cutter Northland.

PRINCE RUPERT DRYDOCK AND SHIPYARD
Prince Rupert, B.C.

DRYDOCK, PAINT, MISCELLANEOUS: S.S. Prince George, bottom damage forward entailing about 120,000 lbs. new steel, annual overhaul—time 35 days, completed Jan. 15, 1934. M.B. Bellingham, D. G.S. Essington, D.G.S. Newington, C.N. Steamships Barge C.N. 105, M. B. Katherine B, 17 Fishing Boats, 22 Commercial Jobs.

THE PUGET SOUND NAVY YARD
Bremerton, Washington

NEW CONSTRUCTION: U.S.S. Astoria (heavy cruiser No. 34) keel laid September 1, 1930; launched December 16, 1933; LBP 578'; Beam 60'1½"; Loaded Draft, 217'; geared turbine engines; B & W Express boilers; U.S.S. Worden (Destroyer No. 352), keel laid December 29, 1932; LBP, 334'; Beam 34'2½"; Loaded Draft, 10'10"; geared turbine engines; Yarrow type watertube boilers; U.S.S. Cushing (Destroyer No. 376); LBP, 334'; Beam, 35'¾"; Loaded Draft 10'10"; geared turbine engines; express type boilers; and U.S.S. Perkins (Destroyer No. 377); LBP 334'; Beam, 35'¾"; Loaded Draft, 10'10"; geared turbine engines; express type boilers; building under provisions of National Industrial Recovery Act.

DRYDOCK, PAINT, MISCELLANEOUS: Saratoga, Arkansas, Colorado, Oklahoma, Marblehead, Houston, Detroit, Kanawha, Chelan, Haida, Mahopac, Tatnuck, Swallow, Challenge, Wando, Arrostook, Jason, Kearsarge, Patoka, Pawtucket, Prometheus, Pyro, AS-8 (Ex-Savannah).

UNITED STATES NAVY YARD Mare Island, Calif.

NEW CONSTRUCTION: Heavy cruiser San Francisco, (CA-38) for United States Navy, 10,000 tons displacement; L.B.P. 578'; extreme beam 61'10"; normal loaded draft, 21'7"; keel laid September 9, 1931; launched March 9, 1933; delivered Feb. 10, 1934. Smith, U.S. torpedo boat destroyer (DD378); 340 ft. long, 35 knots speed; standard displacement, 1500 tons; estimated completion date, Feb., 1936. Preston, U. S. torpedo boat destroyer (DD-379); 340 ft. long; 35 knots speed; standard displacement, 1500 tons; estimated completion date, May, 1936.

Atlantic, Lakes, Rivers

AMERICAN BRIDGE COMPANY Pittsburgh, Pa.

NEW CONSTRUCTION: Repairs to 29 coal barges (175'x26' 11") for Carnegie Steel Co.; 24 delivered. Also, order for repair of 20 barges.

BATH IRON WORKS Bath, Maine

NEW CONSTRUCTION: Hull No. 154, Dewey (DD 349), torpedo boat destroyer for U.S. Navy; keel laid Dec. 16, 1932; estimated launching, May, 1934; estimated delivery, August, 1934. Hull No. 159, Drayton (DD 366), torpedo boat destroyer, U.S. Navy; keel laying and launching, no dates set; estimated delivery, November, 1935; Hull No. 160, Lamson (DD 367), torpedo boat destroyer, for U.S. Navy; keel laying and launching, no dates set; estimated delivery, January, 1936. Speed loaded for all three of the above, 36½ knots. Standard displacement 1500 tons, turbine engines.

BETHLEHEM SHIPBUILDING CORPORATION Fore River Plant, Quincy, Mass.

NEW CONSTRUCTION: For the U. S. Navy: Torpedo Boat Destroyer Farragut (No. 348), 340 ft. long, 35 knots speed. Estimated launching, March, 1934. Heavy Cruiser CA-39, Quincy, 10,000 tons. Estimated delivery January, 1936. Heavy Cruiser CA44, Vincennes, 10,000 tons. Estimated delivery January 1937. Keel laid January 2, 1934. Four Torpedo Boat Destroyers: DD360, Phelps, keel laid January 2, 1934; estimated delivery, December, 1935; DD361, Clark, keel laid Janu-

ary 2, 1934; estimated delivery February, 1936; DD362, Moffett, keel laid, January 2, 1934; estimated delivery April 1936; DD363, Balch, estimated keel laying, March, 1934; estimated delivery, June, 1936.

CHARLESTON DRYDOCK AND MACHINERY CO. Charleston, S.C.

NEW CONSTRUCTION: Yacht Ranger, conversion to cargo boat; completed December 14, 1933, delivered. Contract for building a 60,000-gallon gas, all-welded tanker; estimated delivery, March 1934; owners not announced.

DEFOE BOAT AND MOTOR WORKS

Bay City, Mich.

NEW CONSTRUCTION: U. S. Coast Guard Cutter No. 151, displacement tonnage 1000; keel laid, November 30, 1933; estimated launching, Sept. 1934; estimated delivery, Nov. 1934. U. S. Coast Guard Cutter No. 152, displacement tonnage 1000; geared turbine drive; B. & W. boilers; 1500 h.p.; keel laid Dec. 15, 1933; estimated launching, Oct., 1934; estimated delivery, Nov., 1934.

THE DRAVO CONTRACTING CO. Engineering Works Dept., Pittsburgh, Pa., and Wilmington, Del.

NEW CONSTRUCTION: Contract No. 872, Hull No. 997, one diesel sternwheel towboat of 91 gross tons; contract No. 983, Hull No. 1151, one steel floating drydock, Bureau of Yards and Docks, Navy Department, of 4220 gross tons; contract No. W1004, Hull Nos. 1166, 1167, and 1168, three hopper type mdse. barges, size 132' x 35' x 11' for the Union Barge Line Corp., Pittsburgh, Pa., 2072 gross tons. Contract No. 1019, Hull No. 1169, 240 H.P. single screw diesel towboat; size 90'x21'x6'9"; 153 gross tons. Hull No. 1170 (1) 13,500 bbl. welded gasoline barge. Hull size 195'x40'x13'3", Seaboard Shipping Corporation. Hull No. 1171 (1) welded steel bulk oil barge. Hull size 195'x40'x13'3", Seaboard Shipping Corporation. This makes a total of eight hulls under contract, with a total gross tonnage of 7518.

ELECTRIC BOAT CO. Groton, Conn.

NEW CONSTRUCTION: Hull No. 17, Cuttlefish, fleet submarine, (SS171) for U.S. Navy, keel laid

October 7, 1931; launched July, 1933; and estimated delivery, May, 1934; standard displacement, 1125 tons. Also two river boats of about 250 tons, 145 feet long, no names, estimated delivery, April, 1934. Hull No. 19, fleet submarine, Shark, (SS174); L.B.P. 298'; beam, 25'; standard displacement, 1315 tons; keel laid, October 24, 1933; estimated launching, April, 1935. Hull No. 20, Tarpon (SS175): L.B.P., 298'; beam, 25'; standard displacement, 1315 tons; keel laid, Dec. 22, 1933; estimated launching, February, 1935; possible delivery, November, 1935.

DRY DOCK, PAINT, MISCELLANEOUS: U.S.S. Cuttlefish.

THE FEDERAL SHIPBUILDING AND DRYDOCK COMPANY Kearny, N.J.

NEW CONSTRUCTION: Two destroyers, DD368 Flusser and DD369 Reid for the U. S. Navy, estimated completion dates—Flusser, Nov., 1935; Reid, February, 1936; Hulls Nos. 127 and 128, Destroyers; Hull No. 129, barge for stock; keel laid, Dec. 13, 1933; L.B.P. 175; beam, 39; loaded draft, 12' 7"; 825 d.w. tons; Hull No. 130, barge, owner not announced, 825 d.w. tons.

GREAT LAKES ENGINEERING WORKS

River Rouge, Mich.

NEW CONSTRUCTION: Contract to lengthen the SS. Maine 105 feet, 9 inches, making the new length, 353 feet, 4 inches, between perpendiculars. This ship was shortened last year to get through the St. Lawrence River locks. Ship pulled apart, Feb. 12, 1934; estimated completion, April 1, 1934.

INGALLS IRON WORKS Birmingham, Ala.

NEW CONSTRUCTION: Hull No. 72, river dredge; keel laid, Nov. 6, 1933; launching, no date set; L.B.P. 140 feet; beam, 49 feet. Hulls Nos. 73 and 74, river pontoons; keels laid Nov. 1933; L.B.P. 140'; beam, 8'. Hulls Nos. 76 and 77, 2 barges, A-76 and A-78; keels laid, Nov., 1933; launched Jan. 1934; L.B.P., 105'; beam, 29.5'; loaded draft, 6.25'; d.w. tons, 450; Hull No. 75, Wharfloat; 230'x55'x9'9"; keel laid Jan. 1934; estimated launching, March, 1934.

MANITOWOC SHIPBUILDING CO. Manitowoc, Wis.

NEW CONSTRUCTION: Three

U.S. Coast Guard Patrol Boats, Hull Nos. 277, 278, and 279 L.B.P. 165'; beam 25' 3"; loaded draft, 8' 6"; speed loaded, 18 knots; Diesel engines, 1300 S.H.P.; no names; no dates set; Hull No. 280, Lighthouse tender, Tamarack, L.B.P. 111' 8"; beam 29'; loaded draft, 7'; speed loaded 10 1/4 knots; Diesel electric, 450 S.H.P.

THE MARIETTA MANUFACTURING COMPANY

Point Pleasant, W. Va.

NEW CONSTRUCTION: Two 32-inch channel dredges of the dustpan suction head type for U. S. Engineer's Office, Memphis, Tenn. 244' length, 52' molded beam, and 9' depth. These dredges have steel hulls, and keels were laid: Jadwin on July 5th, 1933, and Burgess on July 8th, 1933. They are self-propelled with triple expansion engines and steam turbine drive. Jadwin launched, Oct. 28, 1933; Burgess, launched November 25, 1933; delivered, Feb., 1934.

Three 165' Patrol Boats for U. S. Coast Guard, Washington, D. C. These boats have a 253" beam, they are 132" deep and will draw approximately 7'. They will be of the twin-screw type, propelled by two 650 horsepower Winton Diesel engines. The total displacement of each vessel is approximately 300 tons and the required speed is 16 knots now under construction. Two 132'x35'x10' steel covered cargo barges of 850 tons capacity for stock account under construction; also contract by the War Department, U. S. Engineer Office, Kansas City, Mo., for the construction of two Side Wheel Self-Propelled 34' Pipe Line Dredges of the Dustpan Type. Total contract price \$1,016,500.00. Delivery in 180 and 210 days. These dredges will duplicate (except for an increase in hull length of 10 feet and a small increase in boiler capacity) the Dredges Capt. Meriwether Lewis and Capt. William Clark built and delivered to the same office in 1932. Characteristics of new dredges: Hull — Length, molded, 270'0"; length overall, 277'1 1/2"; breadth, molded, 50'0"; breadth overall, 84' 8 3/4"; depth, molded, 8'6"; depth midships, 9'3".

MIDLAND BARGE COMPANY (Subsidiary of Treadwell Construction Co.)

Midland and Erie, Pa.

NEW CONSTRUCTION: Hulls 248 and 249, two steel Needle

Flats for U.S. Engineer's Office, Cincinnati, Ohio. 48 pontoons, 48' x 18' x 2' 10" for U. S. Engineers, Memphis, Tenn. Two barges, 40'x 18'x3' for U. S. Engineer's Office, Chicago, Ill.

NASHVILLE BRIDGE CO.,

Nashville, Tenn.

NEW CONSTRUCTION: Hull No. 285, Dredge; keel laid February 5, 1934; estimated launching, March, 1934; L.B.P. 90'; beam, 22'; loaded draft, 5'.

NEWPORT NEWS SHIPBUILDING & DRYDOCK CO.

90 Broad Street, New York

NEW CONSTRUCTION: Contracts for H 359 aircraft carrier CV5, Yorktown, for U.S. Navy estimated delivery August, 1936 and H360 aircraft carrier, CV6, Enterprise, for U.S. Navy, estimated delivery, December, 1936. Also Ranger, hull 353, aircraft carrier No. 4 for U.S. Navy, keel laid September 26, 1931, launched February 25, 1933, estimated delivery May 1, 1934. There is also under construction Hull 357, freight vessel for the A. H. Bull Steamship Company, 40 West Street, New York, 410' length, 55' beam, 30'6" depth, geared turbine, delivery estimated April 30, 1934. Also Hull 358, same as above, delivery estimated during May, 1934.

THE NEW YORK SHIPBUILDING COMPANY

Camden, N.J.

NEW CONSTRUCTION: Contracts for four destroyers: Hull No. 408, Porter (DD356); Hull No. 409, Selfridge (DD357); Hull No. 410, McDougal (DD358); Hull No. 411, Winslow (DD359); of 1850 tons each. Also two light cruisers: Hull No. 412, Savannah (CL42), Hull No. 413, Nashville (CL43), of 10,000 tons each for the U.S. Navy Department; estimated delivery dates are as follows: DD356, Porter, Dec., 1935; DD357, Selfridge, Feb., 1936; DD358, McDougal, Apr., 1936; DD359, Winslow, June, 1936; CL42, Savannah, Aug., 1936; CL43, Nashville, Dec., 1936. Oil tanker, No. 414, and oil tanker No. 415, for Standard-Vacuum Transportation Company, 15,000 tons D.W. each; keels to be laid March 26, 1934; delivery early 1935.

THE PUSEY & JONES CORP.

Wilmington, Del.

NEW CONSTRUCTION: Nos. 56, 57, and 58, cruising cutters, build-

ing for Treasury Department, U. S. Coast Guard Service; L.B.P., 150'; beams, 36'; loaded draft 13'; speed loaded, 15 miles per hour; turbine engines, 1500 S.H.P.; two watertube boilers, 325 pounds pressure, construction schedule: No. 56, keel laid, January 16, 1934; estimated launching, June 25, 1934; estimated delivery, September 29, 1934; No. 57, keel laid, January 17, 1934; estimated launching, August 26, 1934; estimated delivery, November 2, 1934; No. 58, keel laid, February 1, 1934; estimated launching, September 20, 1934; estimated delivery, December 8, 1934.

SPEDDEN SHIPBUILDING CO.

Baltimore, Md.

NEW CONSTRUCTION: Hull No. 274 (Diesel), Electric, wrought iron hull, Boarding Cutter, for the U. S. Public Health Service, Staten Island, N. Y., estimated keel laying, March 15, 1934; estimated launching, July 15, 1934; estimated delivery, Dec. 27, 1934; L.B.P. 100'8"; beam, 23'; loaded draft, 10'; speed loaded, 12 knots; two 360 B.H.P. Fairbanks Morse engines. Contract received Jan. 11, 1934.

SUN SHIPBUILDING & DRY DOCK CO.

Chester, Pa.

NEW CONSTRUCTION: Hull No. 150, welded Diesel electric barge for Atlantic Refining Co., L.B.P. 190'; beam, 34'; estimated delivery, May 15, 1934.

DRY DOCK, PAINT, MISCELLANEOUS: S.S. J. N. Pew, S.S. Lotte Leonhardt, S.S. Ligonier, Tug W. L. Taylor, S.S. Liebre, M.S. Northern Sun, S.S. Cuyamapa, S.S. Pacific Cedar, M.B. Raritan Sun.

TODD SHIPYARDS CORP.

25 Broadway, New York City

(Robins Dry Dock and Repair Company, Brooklyn, N.Y.)

CONTRACTS FOR REPAIR: U.S. Army transport Republic, at a price of approximately \$14,280.40. Collision damage to SS. Munargo of the Munson Steamship Lines, N.Y. Price involved, \$72,000, delivery to be made in 45 days.

UNITED DRYDOCKS, Inc.

Staten Island, N.Y.

NEW CONSTRUCTION: DD364, destroyer Mahan, estimated delivery, Oct. 1935, and DD 365, destroyer Cummings, estimated delivery, Dec., 1935, for U. S. Navy. Hull No. 818 Barge Blue Line 102 for J.

McWilliams Blue Line; keel laid August, 1933; launched December 21, 1933; delivered December 23, 1933. Hull No. 821, Studerus, Barge, for Studerus Oil Co.; L.B.P. 100', beam 30', depth 8', keel laid Nov. 10, 1933; launched Dec. 27, 1933; estimated delivery, Jan. 15, 1934. Hull No. 822, tanker, keel laid, February 1, 1934; estimated launching, May 15, 1934; estimated delivery, June 30, 1934. Hull No. 823, tanker, keel to be laid, March 5, 1934, estimated launching, August 2, 1934; estimated delivery, Sept. 31, 1934. Hull No. 824, estimated keel laying, April 2, 1934; estimated launching, July 2, 1934; estimated delivery, August 31, 1934. Data on all three above: L.B.P., 252'; Beam, 40'; Depth, 14'; D.W. Tons, 1200; 2 Diesel engines of 375 BHP each building for Standard-Vacuum Transportation Co.

UNITED STATES NAVY YARD Boston, Mass.

NEW CONSTRUCTION: Destroyer DD 370, Case, L.B.P. 334 ft., beam 35 ft.; estimated delivery, Feb., 1936; destroyer DD371, Conyngham, L.B.P. 334 ft., beam 35 ft., estimated delivery, May, 1936; destroyer DD354, Monaghan, L.B.P. 334 ft., beam 34 ft. 2 in., keel laid, November 21, 1933; estimated delivery, May, 1935; destroyer DD-351, McDonough, keel laid May, 1933, L.B.P. 334 ft., beam 34 ft. 2 in., estimated delivery, Feb., 1935; for the U.S. Navy.

UNITED STATES NAVY YARD Charleston, S.C.

NEW CONSTRUCTION: U.S.S. Charleston, gunboat (PG 51) for U.S. Navy, building period assigned by Navy Department, Nov. 1, 1933, to Feb. 1, 1936. Work started, Feb. 1, 1934. Also assigned Coast Guard Harbor Cutters 61, 63, and 64; work started Feb. 1, 1934; expect to lay keels about June 1. One Coast Guard Cutter (2000 tons). No dates set.

UNITED STATES NAVY YARD New York, N. Y.

NEW CONSTRUCTION: Hull No. 32, New Orleans, heavy cruiser; keel laid, March 14, 1931; launched, April 12, 1933; no delivery date set; L.B.P. 578'; beam 61'9"; standard displacement, 10,000 tons; geared turbine engines; express type boilers. Hull No. 350, Hull, destroyer; keel laid, March, 1933; no further dates set; L.B.P. 334'; beam, 34'2"; standard displacement, 1500 tons;

geared turbine engines; express type boilers. Hull No. 353, Dale, destroyer, dimensions same as above, no dates set. Hull No. 41, Brooklyn, light cruiser, no dates set; L.B.P. 600'; beam 61'8"; standard displacement, 10,000; geared turbine engines; express type boilers. Hull No. 50, Erie, gunboat, no dates set; L.B.P., 308'; beam, 41'; standard displacement, 2000 tons; geared turbine engines; express type boilers. Building for U.S. Navy.

UNITED STATES NAVY YARD Philadelphia, Pa.

NEW CONSTRUCTION: Philadelphia (CL41), light cruiser, 10,000 tons, length overall 608'4"; breadth 61'9" extreme; depth 34' at side; estimated completion, Nov., 1936. Minneapolis (CA36), heavy cruiser, 10,000 tons, length overall 607'6"; breadth 59'6" molded; depth 35'8"; tentative delivery date August, 1934; Aylwin (DD355), destroyer, 1,500 tons; Cassin (DD372), destroyer, 1,500 tons; Shaw (DD373) destroyer 1,500 tons for last three above; length overall 341'3", breadth 34'11½" extreme; depth 23'2" at side; tentative delivery dates January, 1935, February, 1936, May, 1936, respectively. Four U. S. Coast Guard cutters to be delivered December 1935, February 1936, April 1936, and June 1936, respectively; dimensions: L.B.P., 308'; Beam, 41' 3¼"; Loaded draft, 2000.

UNITED STATES NAVY YARD Portsmouth, N. H.

NEW CONSTRUCTION: Three submarines: SS 170, Cachalot, keel laid, Oct. 21, 1931; launched, Oct. 19, 1933; commissioned Dec. 1, 1933; delivered, Feb. 28, 1934. SS. 172, Porpoise; keel laid, October 27, 1933; estimated delivery, Feb. 1936. SS 173, Pike, keel laid, Dec. 20, 1933 estimated delivery, May, 1936; Coast Guard Harbor Cutter 62; estimated delivery, Nov. 1934.

UNITED STATES NAVY YARD Portsmouth, Va.

NEW CONSTRUCTION: Torpedo Boat Destroyer Tucker (DD374) for U.S. Navy, 341 ft. long; beam 35'; loaded draft, 10'10"; treaty standard displacement, 1500 tons; No. 4 boilers; 35 knots speed; estimated delivery, February, 1936; Torpedo Boat Destroyer Downes (DD375) for U.S. Navy, 344 ft. long; beam 35'; loaded draft, 10'10"; treaty standard displacement, 1500 tons; No. 4 boilers; 35 knots speed; estimated delivery, May, 1936. Laying down lines under way in mold loft.

AMERICAN SHIPBUILDING (Continued)

SEATTLE YARD LOW ON PATROL VESSEL

The Winslow Marine Railway & Shipbuilding Company of Seattle submitted the low bid for construction of the "Brown Bear," fourth and largest of the fleet of seven wooden patrol boats to be built for the bureau of biological survey of the U. S. Department of Agriculture in Washington, D.C. on March 2. The Seattle firm was low with two alternate offers of \$65,899 and \$64,099. The contract will cover the vessel complete except for the main engines, contract for which has already been let to the Washington Iron Works of Seattle.

Bids for the fifth vessel of the fleet, a 58-foot wooden boat to be named "Grizzly Bear," are now being called by the Department of Agriculture and will be opened in Washington, D.C., on March 16. The Washington Iron Works will also build the engines for this boat. Contract for three smaller boats of the fleet has already been let to an Olympia firm.

The "Brown Bear," largest of the fleet, will be 115 feet long, 26 feet abeam, and will have a depth of about 13½ feet. She will be powered with two 100-horsepower Washington Diesels, giving a normal speed of 10½ to 11 knots. The vessel will be operated in Alaska waters in the biological survey's patrol work.

All seven vessels of the new fleet have been designed by H. C. Hanson, Seattle naval architect.

DRAVO WILL BUILD STEEL TANK BARGE

The Dravo Contracting Company, Pittsburgh, Pa., has been awarded contract for the construction of a non-propelled, steel, tank barge for the movement of gasoline by the Seaboard Shipping Corporation, New York. The barge will have a length of 195 feet; a beam of 40 feet; and a depth, molded at side, of 12 feet, 9 inches; center depth, 13 feet, 3 inches. The hull will be electrically welded throughout, and built on the Isherwood bracketless system. A complete electric lighting system is to be installed with a 1½ kilowatt Westinghouse gasoline engine-driven generator, and eleven —volt storage batteries of ample capacity. The barge will be fabricated at Neville Island in the Pittsburgh district, and erected and delivered at Wilmington, Del.



Marine Insurance

Marine Insurance in 1933

Some Observations on an Eventful Year and its Lessons for the Future

The year 1933, according to the big guns of the great European marine insurance associations, is a turning point in marine underwriting, because so many underwriters lulled to a false security by the favorable results of business over a period of years had allowed their customary safeguards to be removed and indulged in much competitive price cutting and in the granting of unwarranted privileges.

In presenting the annual report to the Institute of London Underwriters, Chairman P. H. Mathews briefly referred to the market situation in general, and to the work of the Institute in particular, during 1933, as follows:

"We have had a curiously mixed kind of experience during the past year. Almost at the outset we were faced with the breakdown of the joint hull agreement.

"Most of us, I think, were really surprised at the result of having a free market for hull insurances.

"I believe even the anarchists in the market thought that with freedom of action they would still be able to regulate the terms for renewal and keep them within reasonable limits.

"The actual effect was really chaotic and was so sudden that by the end of six months everybody was deploping the condition of things and anxious for some form of agreement. Eventually, as we all know, a fresh respect the lead agreement was brought into being. This second agreement, however, has proved to be anything but satisfactory, and seems to reflect an apparent lack of a general desire to maintain rates on a reasonable basis.

"While I always believe in looking forward to the future with optimism, at the present moment it does seem to be a bit difficult. It is not easy to explain to many underwriters and less easy still to shipowners and merchants that at the very time when the published reports of the marine insurance companies are generally showing really good profits we may have to be telling them that we cannot any longer continue to persist in giving

them larger and further increased reductions in our terms for their renewals.

"The reason is, of course, that these published results are the outcome of the underwriting of two to three years ago and that since then we have been steadily granting reduced terms as each year's renewal comes round and that the underwriting to-day probably bears an accumulation of reductions somewhat equal to the percentage of profit shown in these balance sheets.

"The cargo side of the business, which has practically no agreement or other restriction, is governed almost entirely by free underwriting and consequently all rates and terms are practically what the brokers and their clients like to make them, accentuated principally by the tremendous shrinkage in the trade of the world. As soon as this improves once more perhaps the opportunity may occur to increase some of the rates which have been reduced too far during the past few years.

"Aviation insurance, especially the carriage of gold, registered packets, securities and valuables of all kinds, has progressed tremendously and on many routes there is very little difference between the rates of the ordinary rail method of transport and that of the air.

"I would again stress the great importance of our government obtaining for us by negotiation when they are arranging trade agreements with other countries, the freedom to receive our premiums in return for the corresponding liability to pay our losses on which no foreign government places any restriction whatsoever.

"It seems to me that some better method of dealing with war risk should be devised.

"The problem is how we can continue to grant the merchant cover against war risk and at the same time give ourselves the necessary safeguard that we shall obtain the adequate premium immediately the risk changes from being merely a contingent or nominal one into an actual risk. It is quite certain that our present system does not carry this out satisfactorily."

It is interesting to note in passing that the occasion of these remarks was the 50th annual meeting of the Institute of London Underwriters, and that the Institute has grown from a group of seven in 1884 to an association of 64 at the present writing.

Mr. Axel Rinman, President of the International Union of Marine Insurance, includes practically the same warning in his New Year's message to the members of that Union.

"The year before us," writes Mr. Rinman, "is likely to be trying in more than one respect. After two or three years of rather satisfactory underwriting results (mostly attributable to favourable but unforeseen circumstances, as we all know) all signs now tend to show that the pleasant spell is over. The year 1933 itself may perhaps turn out fairly satisfactorily, but in my opinion it will, nevertheless, be earmarked as a most

fatal year. Because in 1933, underwriters, forgetful of past troubles, have allowed the marine branch to suffer a very manifest deterioration. It would be almost a miracle if in 1934 and 1935 the figures should not reflect in a conspicuous way the mistakes made in 1933.

"The damage already done is not easily or quickly repaired but the least one can expect at this stage is that further reductions in rates and values be avoided and that in 1934 we shall be privileged to witness a determined and concerted action with a view to regaining

the ground which was lost in 1933."

In this connection it is significant that during the fiscal year ending in 1933 the U. S. Shipping Board Marine Insurance Fund coverage had been reduced from \$82,503,775 at the beginning of the year to \$54,003,775 at its close. Of the latter figure, \$30,389,875 applied to 106 privately owned vessels in which the Shipping Board had an equity, and \$23,613,900 applied on vessels wholly owned by the Shipping Board and operated by the Merchant Fleet Corporation.

Economics of Stevedore Accidents

(Continued from Page 111)

That difference in placing the decimal point looms up big on the balance sheet!

● Effect On Insurance Rate

Two years ago Mr. Leon Senior of the compensation rating bureau gave to this group an illustration of the effect of accidents on the insurance rate. If a stevedore with a \$50,000 annual payroll had five serious accidents in the year, his premium rate, on an experience basis, was affected by 63 per cent, and went into the debit rate. On the basis of 15 per cent premium he would pay \$7,500 a year. The five injuries made a difference of \$4,725 a year in this rate.

Considered from another angle, the 99 non-fatal cases above averaged twelve weeks, or practically three months disability. Twenty-five of the 400 men were continuously away from work on account of injury. One man out of 16 was being supported in the hospital by the other 15. The industry is compelled to support 6 per cent more longshoremen than its maximum need for labor.

The situation in the port has caused some companies who have found they can control their accidents, to go self insured, and the insurance companies to establish credit and debit ratings for the others, so that the good risks are not carrying all of the excessive losses of their competitors. At present there is a total spread of cost ranging from not over 6 per cent to at least 24 per cent of payroll.

● Effect On Business

The competitive condition which resulted has compelled the high cost stevedore to cut all possible corners in order to exist, and often to the detriment of his principals and of the labor relations in the port. Desperate attempts to squeeze out a profit under these conditions generally results in still further unsafe practices, an increased insurance cost, and more protest from labor until the stevedore is obliged to "fold his tent".

The ship operator cannot escape paying a considerable portion of the bill. Whether his competitive position is endangered or not depends entirely upon his



This view of the deck, two forward hatches and cargo handling gear of a modern American cargo carrier at the outfitting dock, illustrates a few stevedore hazards.

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trade, but he is undoubtedly in the best position to reduce accidents in the port, because he hires the stevedore. He would do well to keep informed on his accident frequency. A good safety record is one of the best endorsements a stevedore can have, assuring his principal of a minimum cost of accidents, both direct and indirect, and of an efficient and well trained organization.

No effective control of accidents will be had until the ship operator and stevedore want it. It must come through their direction. With this in effect, the interest of the longshoreman to avoid injury can be stimulated. Very little has been done, so far, toward this end. In fact, during the past few years some claim agents have broadcast the impression that the longshoreman is better off financially injured than working. If there is a definite wage loss to injured men, it should be used as the most powerful argument in urging them to work safely.

● Effect On Earnings

The compensation law provides that an injured employee shall receive two-thirds of his wages if disabled beyond seven days. In New York there is in effect an "agreed rate" of compensation, regardless of earnings. At the present time it is \$16 per week on the assumption that the average wage is \$24. That means that a longshoreman would work less than an average of two days per week, or have annual earnings of less than \$800 per year, before he would "break even" on compensation.

Of each 100 longshoremen injured in this port during the last five years 20 have returned to work in seven days or less, and received no compensation for lost time; 52 have returned between the 7th and 49th day, 27 were disabled 50 or more days, and 1 was killed. The average compensation to the dependents of the dead man was \$6,000, or less than half his probable future earnings. The losses of the other 99, without attempt to include other than wage loss on a \$24 a week wage basis, were:

| | | |
|---------------------------|-------|-----------|
| 20 TTD average loss | \$ 12 | \$ 240.00 |
| 52 TTD average loss | 40 | 2080.00 |
| 13 TTD average loss | 232 | 3016.00 |
| 14 PPD average loss | 352 | 4928.00 |

| | | |
|-----------------------|----------|-------------|
| 99 non fatal av. | \$103.67 | \$10,264.00 |
|-----------------------|----------|-------------|

On this basis, the longshoreman's wage loss is about one-third the combined compensation and medical bill of the stevedore. If this is the case, why conceal such

an excellent argument for safe working, in order to advertise the occasional malingering?

The longshoreman can also figure his chances of being disabled by injury. If he is lucky enough to work 213 days in a year, he stands a 1 to 4 chance of temporary injury, a 1 to 28 chance of permanent impairment, and a 1 to 400 chance of being killed. Stevedores whose records are better than this average have a right to let their employees know the additional security to be found in their employment.

● Using Accident Costs In Prevention Work

For the company interested in controlling its accidents, up-to-date, detailed costs of accidents are an important aid. On the completion of each job, the manager should have before him the estimated cost of all accidents, to be used as a charge against the job. Accident costs are real operating costs, and should not be buried in overhead or some other account. Current costs should be in the hands of the manager and chief stevedore, so that any unusual trends can be detected before they have cost too much.

It is well, also, to keep a record of each foreman's accident costs, and to let him know at regular intervals



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whether these costs are eating up all of his profits. A proper balance between the drive for production and for safety of the men will bring the highest return in profits. Unless the foreman's attention is called to accident costs, he can hardly be expected to believe his superiors think that accidents are important as compared to tonnage.

The average loss of the longshoreman has been shown above. It is a very simple problem for each company to find what this cost is to their regular men. It is one of the most forceful arguments for getting the men behind accident prevention. Why not use it?

Accidents do not occur without a cause. They will not cease to occur until the causes are removed. Stev-

dores who realize the chance for profit, have removed a great many causes and have stopped the accidents. Cost has been the greatest motive, and cost analysis has been used in planning their work. The result is a competitive advantage which increases each year as their safety work becomes more effective and their competitors stand still.

While all of the cost estimates used here are extremely conservative, it is hoped that they are striking enough to arouse the necessary self interest of ship operators, stevedores, and longshoremen so they will work more actively for control of accident causes.

(Address delivered at Greater New York Safety Conference,
March 6th, 1934)

ROY C. WARD

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INSURANCE

BROKERS FOR THE ASSURED—AVERAGE ADJUSTERS

Pacific Marine Book Reviews

(Continued from Page 114)

wife. His mature life, involving his financial triumphs, his marriage, his children with their conflicting natures, and the working out of the captain's prediction regarding "The tree in the midst of the garden" makes engrossing reading.

GERMAN FAMILY by L.C.N. Stone. 345 pages bound in scarlet cloth with gold lettering. Published by the Bobbs - Merrill Company. Price \$2.50.

Concealed by a pseudonym, L. C. N. Stone undoubtedly knows from personal experience the post-war Germany which he presents so vividly. An English widow marries a German of culture and scientific attainment to whom she was engaged before the war. Taking her two children by a former marriage, she goes to Germany and establishes her home. Then comes the incredible regime of Hitler and the hitherto unimportant realization that the husband is of Jewish descent. The story is dramatic, powerful and arrestingly real as it shows us what life can do to a fine group of intelligent, well-bred, high-spirited people.

WEDDING SONG by David Burnham, 376 pages, bound in purple cloth with silver motif. Published by the Viking Press. Price \$2.50.

An ultra-modern novel, the scene of which is Venice. The characters

are worldly young Americans and tired Italian aristocrats who live an entirely unreal and artificial life, pictured for the reader (in the first person) through the medium of alternate chapters by an American brother and sister.

A MODERN TRAGEDY, by Phyllis Bentley. 435 pages, attractively bound in a warm burnt orange with black design and gold lettering. The MacMillan Company, New York. Price \$2.50.

A thoughtful story sympathetically told, "A Modern Tragedy" presents Walter Haigh, a sensitive, ambitious, rather ingenuous young man, who, through the exigencies of business depression, coupled with his own weakness, is drawn into a series of unfortunate events resulting in the break-down of much that is fine in the lives of all the chief characters of the book. "A

Modern Tragedy" is a fitting successor to "Inheritance." Like Miss Bentley's other characters, the people in this book stand out with striking individuality and strength. A book well worth owning for anyone interested in watching human nature work itself out against a modern economic background.

OTHER BOOKS RECEIVED

Reviews of these books will appear in a forthcoming issue of Pacific Marine Review.

A Hundred Years of Towage by Frank C. Bowen. 225 pages copiously illustrated. The history of Messrs. William Watkins, Ltd. of London, it describes the towage and salvage business of that firm on the river Thames and its sea approaches from 1833 to 1933. Distribution complimentary by Messrs. Watkins.

American Foreign Trade in 1933. The proceedings of the 20th National Foreign Trade Convention at Pittsburgh, Pa., April 26-28, 1933. Issued by the Secretary, National Foreign Trade Convention Headquarters, India House, New York.

Murder—Made In Germany. By Heinz Leipman. Harper & Bros.

Adventure's A Wench. By Charles Veil. William Morrow & Co.

Freights, Charters, Sales

March 19, 1934.

The lassitude to which we referred in our last report has continued. While there have been a number of fixtures for China wheat and the Vancouver/U.K. Continent berth, as a whole the freight market has been featureless and dull.

Charters are as follows:

Grain:

British steamer Warlabey, Portland to Ireland, 19/6; British steamer Simonburn, Portland to Ireland, 20/6; British steamer Hartlepool, Portland to Shanghai, 11/-; British steamer Harperly, British Columbia to London and Hull, p.t.

British steamer Comer, Portland to Shanghai, p.t.

Norwegian Motorship Bronxville, Portland to Shanghai, 11/-.

Norwegian motorship Skramstad, Portland to Shanghai, 11/-.

British motorship Cape Horn, Portland to Shanghai, 11/-.

British motorship Frumenton, Portland to Shanghai, 11/-.

British steamer Trewolas, Brit-

ish Columbia to U.K./Cont., 17/3; American steamer Texas, American motorship Pennsylvania, American steamer Melville Dollar, and American steamer Margaret Dollar, all Columbia River to Shanghai, p.t.

Lumber:

British steamer Anglo Indian, British Columbia to Australia, p.t.; British steamer Harlingen, British Columbia to Australia, p.t.

Miscellaneous:

British motorship Bonnington Court, British Columbia/Montreal, p.t.; British steamer Kirkpool, British Columbia to London and Hull, 19/-, f.i.o.; British steamer Anglo-Peruvian, British Columbia to U.K./Cont., p.t.

Time Charter:

Norwegian motorship Brand, 1 trip, delivery North Pacific, redelivery U.K./Cont., p.t.; Norwegian motorship Beljeanne, 4 months, delivery North Pacific, delivery U.K./Cont.

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Trade Notes

Radio Suits. The Radio Corporation of America announce that suits have been brought under its patents and a number of patents under which it holds licenses against two of the companies associated with the International Telephone and Telegraph Co., namely, the Mackay Radio and Telegraph Company, Inc., and the Federal Telegraph Company of Newark, New Jersey.

The position taken by the Radio Corporation of America is that these associated companies of the International Telephone & Telegraph Company are infringing patents owned by the Radio Corporation of America, as well as others under which RCA holds licenses. The suit against the Mackay Radio and Telegraph Company in the United States District Court, Eastern District of New York, claims infringement of six United States patents relating to radio inventions used in marine, transoceanic and domestic radio communication. The suit against the Federal Telegraph Company in the District of New Jersey claims infringement of six United States patents relating to radio tubes.

● **Passenger Agency Expansion.** Through its appointment as official passenger agent by member lines of the Trans-Pacific Passenger Conference, the Travel Department of the General Steamship Corporation, Ltd., which already boasts of service to "700 ports on all the Seven Seas," today adds ten new lines to its steamship "family."

These lines include the Dollar Steamship Company, Matson Navigation Company, Union Steamship Company, American Mail Line, Canadian-Australian Line, Canadian Pacific Steamship Company, N.Y.K. Line, O.S.K. Line, States Steamship Company and Oceanic Steamship Company.

Coincidentally, it is announced that the Transatlantic Steamship Company, Ltd., and the Kerr Steamship Co., Inc. (Silver Services), long represented by the General Steamship Corporation, Ltd., have joined the Trans-Pacific Passenger Conference.

The Transatlantic line, operating a fleet of natty motorships under the Swedish flag, offers sailings from the Pacific Coast every three weeks to Brisbane, Sydney, Mel-

bourne, Newcastle, and Adelaide.

The Kerr Line's "Silver" ships offer three sailings monthly for such unusual and fascinating ports as Manila, Iloilo, Cebu, Macassar, Sourabaya, Samarang, Batavia, Singapore, Port Swettenham, Belawan Deli, Penang, Rangoon, Calcutta, Capetown, Port Elizabeth, East London, Durban, Lourenco Marques and Beira.

Some of the vessels in these services proceed around the world by a novel and colorful route.

● **American Shipyard Dividend.** The directors of the Todd Shipyards Corporation at their monthly meeting on February 20 declared a quarterly dividend of 25 cents a share, payable on March 20 to stockholders of record at close of business on March 5.

● Turbo-Blower Consolidation.

Ingersoll-Rand Company has acquired the turbo-blower business of General Electric Company and will consolidate it with its own Turbo-Blower Department.

This acquisition places Ingersoll-Rand in position to meet demands for blowers and centrifugal type compressors for the broadest possible variety of uses.

Ingersoll-Rand is a long-established manufacturer of blowers of medium and large capacities, for pressures ranging up to 100 pounds. General Electric has specialized in both single- and multi-stage units for a variety of services in low and medium pressures. Ingersoll-Rand also secures an exclusive license under the various General Electric patents.

This complete line of blowers now offered by Ingersoll-Rand includes low pressure units for aeration of sewage, ventilating and air conditioning systems, blowing cupolas, atomizing oil for furnaces, furnishing agitation air for flotation work, and for raw water ice systems, operation of pneumatic conveying systems, and developing pressures and vacuums in handling manufactured gas.

The medium-pressure machines cover the complete field for blast furnace and converter blowing and for gas booster work.

The manufacturing equipment previously employed by General

Electric is being moved to Ingersoll-Rand's Phillipsburg, N. J. plant, where all types and sizes will be manufactured. Sales activities will be directed from Ingersoll-Rand Company's general offices at 11 Broadway, New York.

● **Legalized Booze Business.** With the legalization of liquor transport, marine underwriters are finding considerable additions to their premium income.

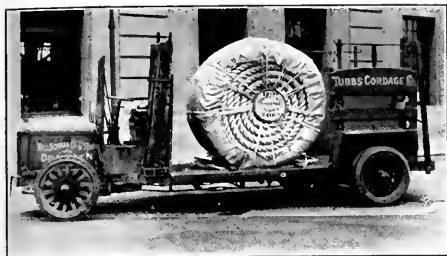
● **National Fire Protection Association.** Definite steps are under way to form a Marine Division of the National Fire Protection Association in order to affiliate with that body American shipping, shipbuilding, drydock and other marine interests.

TRADE LITERATURE

"Via R.C.A." is the title of a very beautiful brochure issued by the Radio Corporation of America, New York City. This 35-page booklet, printed on the finest quality smooth paper, is prefaced by a foreword by David Sarnoff, President of R.C.A.; and tells the story of the radio communication services developed and conducted by the Radio Corporation of America. Particular stress is laid on marine communication and radio apparatus for ships, radio direction finders, medical service by radio, and radio service on lifeboats. Many unusually fine illustrations add to the attractiveness of the book. Copies may be obtained from Pacific Marine Review or from the Radio Corporation of America upon request.

● **The Worthington Pump and Machinery Corporation** offer a new leaflet describing "Worthington Rotary Pumps." The uses, features and specifications of the pumps are given as well as two excellent illustrations and two diagrams of parts. Copies may be had free on request from the Worthington Pump and Machinery Corp., Buffalo, N. Y. or from Pacific Marine Review.





The House of Haviside and Tubbs Cordage Join in Selling Affiliation

Two firms whose histories have been interlocked with San Francisco waterfront chronicles for scores of years have joined forces!

Tubbs Cordage Company, established in 1856 and manufacturing cordage products over this 78-year period, has appointed Haviside Company, pioneer shipchandlery firm, as a marine agent in this district. The Haviside organization will handle Tubbs Cordage exclusively.

inside derrick barge with Harry T. Haviside and Byron L. Haviside supervising the lift.



Harry T. Haviside.



Herman D. Nichols,
Tubbs Cordage Co.

Sales officials of Tubbs Cordage Company, Stuart Henshaw and Herman D. Nichols, expressed their pleasure in the new selling outlet for their rope products, pointing out that the appointment has been made to broaden their firm's service to the marine trade. This commentator was impressed by the long-established and sterling histories of both companies. It is coincident that Alfred Tubbs, president of the firm bearing his name, was born in the same year which saw the birth of the company, 1856.

Well, and favorably known to the marine interests on the coast, is Herman D. Nichols, who has recently returned to San Francisco after a four-month study of rope-producing methods in Manila.

Harry T. Haviside and his associates state that they are pleased to have the Tubbs line back with their house again after a few years of "separation" and many water-fronters will be interested in this reunion of the two pioneer companies.



Haviside officials watch a 240-fathom coil of 12 inch Supercore swing aboard a Luckenbach liner. Their many friends will recognize Harry T. and Byron L.

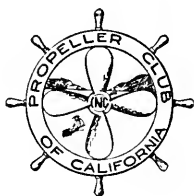


Stuart Henshaw, Sales Manager,
Tubbs Cordage Co.

Interviews with both firms — Tubbs, as manufacturers — Haviside, as distributors — find officials of the two organizations keenly enthusiastic over the new sales affiliation, and confident that the arrangement will be long-lived and mutually advantageous.

Our illustration at the top of the page shows a 240 fathom coil of 12-inch Tubbs Supercore dispatched to the Luckenbach dock in San Francisco. This is the hawser used in towing the Rappahannock to Seattle and our other view shows the coil being hoisted aboard ship by a Hav-

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● Fore!

April 10 is the big day for P.C. golfers.

Menlo Country Club — down that redwood-sentinelled road out of Redwood City is the place.

Past masters of the A. and H. game are shining up their clubs and limbering their elbows. Looks like everyone is going—and the Spring tourney is the popular topic around 'Change and wherever Propellers foregather. Byron Haviside's efficient committee is sounding all hands to come aboard and one of those successful and enjoyable days of good play, good fellowship, and good cheer is being created for your pleasure.

May the committee have your reservations early? Thanks!

● Luncheon Meetings

March 6. "Ahoj Below—All Hands on Deck" said the announcement. The biggest turnout for months was on hand to watch the super-colossal and epoch-making clash of the century between "Captain" Ralph Myers and Richard "Duke" Glissman. Seems futile to report what happened as most of our members were

Dates to Save!

April 3. Our next luncheon meeting. The speaker—Roger D. Lapham, president American-Hawaiian Steamship Company. His subject — one that every ship operator, every man connected with the marine industry should hear!

April 10. Spring Golf Tournament at Menlo Country Club.

May 25 (or thereabouts). The bigger and better Spring Frolie.

eye-witnesses, but be it recorded for posterity that Captain Ralph's presentation of Ah Wing of Shanghai had his audience spellbound, until Duke Glissman started the fireworks! It was one of those "stooge" acts with "plants" springing up from various points of vantage to add to the hilarity. Dick's beautiful, vivacious, sensational stenographers gave us a snappy singing and dancing program, and the whole event was a swell spring tonic—just what a lot of us needed.

March 20. A year ago Rodman C. Pell, Jr., presented a grand movie film before the Propeller Club. Through his exciting camerawork projected to the accompaniment of highly interesting remarks we saw the romantic and picturesque recesses and points of interest of the Tahitian group.

In the interval Mr. Pell has been photographing and editing several reels of film depicting the Panama country. It was our privilege to be one of the first organizations to see the new film, and those who could not attend missed an opportunity to study at close range and under the most enlightening conditions the great Panama project. Propellers stated after the program: "Wonderful photography... the clearest pictures of how the locks are operated"... and other enthusiastic remarks

Of exceptional interest were first reels showing aero views of the San Francisco Bay district. Great little city we have here, shipmates—and what a harbor!

Robert E. Christy did the honors having been selected as chairman of the day.

Tribute to a Notable Salvage Job

It isn't often that we comment in our editorial columns on the style or nature of an advertisement, but we feel that this is a well justified exception. We believe that every reader of P.M.R. will be fascinated by the story of the salvage of the 10,000 ton motorship, Tai Yin, which is set forth in the message of American Wire Rope Company in this edition. One is impressed with the remarkable efficiency of this sal-

vaging—a race against time—the pitting of human skill and knowledge against the encroachments of the sea and elements.

As many of our readers know, time is the essential factor in successful salvaging work, and in this case, with the companion pre-requisites very much on the job—meaning powerful barge equipment and stout towing hawsers — nothing must fail, and nothing did fail! The

10,000 ton motorship with 8,000 tons of cargo slid into deep water just twenty-four hours after she went ashore. Haviside Barge No. 4 having fulfilled her mission returned triumphantly to San Francisco.

And so—we invite you to read the "copy". We are sure you'll find it stirring your imagination and in spiring your admiration of the men who won their battle with Time and Neptune.

Pacific Marine Personals

"NAMES ARE NEWS"



BY BERNARD De ROCHIE

Headquartered in San Francisco for the last two years is **Bartlett B. Bradley** in charge of the Pacific Coast division for **Plymouth Cordage Company**.

Mr. Bradley's firm is this year celebrating its 110th anniversary. His comments on the Plymouth rope-manufacturing history and traditions were very interesting to this writer. Just as rope making is one of New England's oldest industries, so also the Plymouth Cordage Company has its roots in the earliest New England annals. Mr. Bradley tells us that it is not unusual for men to serve over fifty years with his firm, and this applies to executives as well as operative departments. The "subject" of this interview, however, is young in years, the son of H. B. Bradley, executive of the Plymouth organization.

You will find young Mr. Bradley enthusiastic about his company and its splendid history. He came out to the Coast during 1931 and established the Pacific Coast branch and warehousing facilities in San Francisco.

"In our company", he states, "the workmen are considered as one big family, the highest standards of character are encouraged and loyal workmanship logically is reflected in the products we manufacture."

The company distributes its products of cordage and twine through wholesalers and jobbers exclusively. In San Francisco the Plymouth brand of marine cordage is featured by Johnson and Joseph, ship chandlery, where B.B.B. makes his headquarters.

"Without disloyalty to my native heath — meaning New England — I feel like a real native son and have long since adopted San Francisco for my stamping ground," says Mr. Bradley.

Congratulations! say we, to Plymouth in rounding out one-hundred-ten years of service to the marine and other industries which require cordage products.



Bartlett B. Bradley.

Charles A. Perkes, F.T.M. of the Pacific Steamship Lines, Ltd., left on March 19 for his annual business survey of Portland, Seattle, Puget Sound, and British Columbia districts. He will be away about four weeks and is dated up for addresses before several business clubs and association in the Pacific Northwest territory.

Visiting the Eastern States during March, **M. J. Buckley, F.T.M.** of Dollar Steamship Lines, reported a very extensive business trip in the interests of his company and states that the outlook for increasingly better shipping business has made him a real optimist.

R. Stanley Dollar, president of the Dollar Steamship Lines, left New York on the President Pierce, March 20, enroute to headquarters in San Francisco.

Mr. Dollar has spent several months in Europe to better his health and it is good to hear through P.M.R.'s skipper, James S. Hines, who interviewed him in New York, that he is feeling a great deal improved.

M. J. "Monty" Wright visited Pacific Northwestern ports during the month. Vessels of the Luckenbach Line are handling big cargoes out of Seattle and Portland.

William H. Sellender, passenger executive of Matson line, informs us that announcement will soon be released of the fourth extensive 1934 cruise of a Matson liner.

September is the departing time, and the cruising time will be fifty-six days during which nine countries with a total of thirteen ports will be visited.

You are correct—the S.S. Malolo has been selected for the cruise! This ship is famed for inaugurating the South Sea and Oriental Pacific tours.

The big cruise will see the Malolo docked at Balboa, Salaverry, Callao, Chilean and Argentine ports as well as other picturesque South American harbors.

And think of the shore tours.

Captain William H. Waters, formerly assistant manager of the American Express Company in Paris, is now actively connected with the French Lines, 19 State Street, in New York.

An authority on travel and cruisers, Captain Waters will head up a special department inaugurated by this steamship line to plan trans-Atlantic trips. This phase of the ocean passenger business is gaining in popular response and many unique travel tours and special cruises have been devised with Captain Waters' intimate knowledge of foreign points of interest.

We found P. M. Holway, head of the Steamship Company which bears his name, enthusiastic over the smart passage of the new motorship, Devon City, homeward-bound to the United Kingdom and returning this month to Pacific Coast ports. The Diesel "reefer" is under the Reardon-Smith house-flag, and the P. M. Holway Steamship Company are general agents on this coast. The vessel was built especially for the refrigerator service and has 40,000 cubic feet of space available for reefer cargoes. It is rated as the most modern system of refrigeration afloat and ideal for carrying fruit and other perishables.

Revenues at Portland, Oregon, offices of Dollar American Mail, showed the best month since 1929 when reported recently by Dan Gould, assistant general passenger agent. Good work, Portland!

L. E. Archer, P.T.M. of the Panama-Pacific Line, reports heavy bookings—passengers and freight. For instance—the Virginia, leaving San Francisco, March 24, Los Angeles March 26, shows a 60 per cent increase over the same March 1933 sailing date.

Captain George V. Richardson on the bridge!

Captain Einar Peterson, special representative of the Westfal-Larsen & Co. interests at San Francisco, had seven vessels under his dispatch during a single week this month. The "fleet", which loaded on the Pacific Range early in March, included several of the "Anger" types and Capt. Petersen and Erik Krag of Intercoast Steamship Corporation were going full-speed ahead in handling all details.

It is with sincere regret that the publishers of Pacific Marine Review record in these pages the passing of James M. Botts.

"Jim", who was president of American Marine Paint Company, numbered among his friends countless ship operating executives and maritime men. These friendships were developed during his thirty years as a prominent figure in the world of ships.



LOW RATES

Comfortable rooms—
hospitable service
.... excellent in-
expensive cuisine....

FROM FOUR DOLLARS
A DAY

COURT ROOMS—THREE FIFTY

MARK HOPKINS
OR
THE FAIRMONT
HOTELS
OVERLOOKING
SAN FRANCISCO

With the operation of his firm's office in New York, Jim Botts was a frequent visitor to the East Coast, and San Franciscans could always depend on his bringing authentic news of marine happenings in the Atlantic district.

A Virginian by birth, he was a true gentleman, who, during his entire association with Pacific maritime affairs was highly regarded and respected. Jim Botts kept the faith and we say farewell most regretfully.

From Canadian Pacific offices we learn that Captain R. W. McMurray has been appointed manager of the B.C. coastwise service with headquarters at Victoria. Captain McMurray has been with the C. P. since 1910 and has served as marine superintendent for the past nine years.

James Tyson, Jr., newly appointed vice-president and manager of the Nelson Steamship Company, sailed with his bride on the Santa Rosa during the month. The Grace liner, with Captain Curt Zastrow in command, sailed out of the Gate with heavy shipments of freight from Alaska, the Sound and British Columbia.

Mr. Tyson, Jr., and his bride, Mary Ann Lamping, daughter of Colonel Lamping of Seattle, were through passengers. On returning from his honeymoon voyage, the young executive will take up the active affairs of Nelson Steamship Company as its vice-president and manager.

New appointments by Grace Line names Captain R. C. Hoffman as Puget Sound pilot, taking the place of the late Captain Otto B. Lindholm; Captain Jake Reznik, new master of the steamer Condor; Charles T. Moritz, chief officer of the Santa Ana; and William F. Hoyt, skipper of the Capac.

Arriving in San Francisco during the last week in March were Holland-America officials: Willem Hugo de Monchy of Rotterdam, Holland, managing director, and Frederick Rypperda Wierdsma of New York, general manager.

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CONTINUOUSLY &
CONSCIENTIOUSLY



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● Ship of the Air...

The house flag of the McCormick companies is now flying from a new craft—a giant amphibian—a ship of the air which will be used by McCormick officials in connection with the supervision of extensive lumber, logging and steamship operations on the Pacific Coast.

The plane is a giant Sikorsky amphibian type monoplane, and is especially well adapted to the requirements of the company in that it will alight with equal grace and east on land or water, making it possible to land close to their mills which are located entirely on water, miles distant from improved landing fields. It is equipped with a 300-horsepower Wasp whirlwind motor, mounted above the single wing, carries five passengers and equipment and has a cruising speed of 100 miles an hour with a cruising radius of 400 miles.

The ship will be used by the McCormick officials for trips to and from sawmills at Port Ludlow, Port Gamble and St. Helens; three logging camps in Washington, and extensive timber stands in Cowlitz, Mason, Pierce, Jefferson and Kitsap Counties in Washington, as well as in connection with the McCormick Steamship operations in the Northwest.

The plane will be flown principally by Paul E. Freydis, logging manager for the Chas. R. McCormick Lumber Company, with headquarters in Seattle and Portland. Mr. Freydis is a pilot of long experience. He holds a transport license and a Group 1 rating in the United States Army Air Corps Reserve, in which he is commissioned a captain. Mr. Freydis received his flying training prior to the World War and during the War was an Army Air Corps instructor.

Officials of the company feel that the plane will not only assist in speeding up business generally, but is a step forward in modern forest conservation work and fire prevention. Valuable timber stands of the Northwest will be made safer from the appalling ravages of fire, by the vigilant patrol service of the plane.

According to the officials of the company, the McCormick Companies, during all the period of the depression, have been employing several thousand men in camps and mills, as well as in connection with the steamship operations. Their payrolls and operating expenses run well into the millions every year.



Our table-cloths

HAVE GIVEN BIRTH TO SOME BIG IDEAS

WE ARE PROUD of our table-cloths. Many of them go to our laundry bearing distinguished marks of service. Curlicues. Doodads. Thing-a-ma-bobs. But we are happy to have them help you give birth to that big idea.

Thanks to you, and you, and you, the Roosevelt is becoming one of the most popular New York gathering places for sales and advertising executives. Perhaps it is that dollar lunch served in the Grill. Perhaps it is that we have reduced our room prices to \$4. Perhaps it is the quiet, efficient service.

Come on over and use our table-cloths, too,* and if an extra one is needed to help you plan that campaign — just ask the head waiter.

*Pencils though. Fountain pens and indelible crayons leave us cold.

The ROOSEVELT

B. Gordon Hines, Manager
Madison Avenue at 45th Street New York City

A UNITED HOTEL

● PRESIDENT OF A.S.O.A.

R. J. Baker has just been elected to the presidency of the American Steamship Owners' Association after serving as secretary since July, 1926. He succeeds to the vacancy created by the death of H. B. Walker in June, 1932.

Mr. Baker was graduated from Muhlenburg, Johns Hopkins and Columbia, passing in law from the last named university. He became interested in shipping while serving as manager of the Foreign Trade Bureau of the Export and Import activities of the Baltimore Chamber of Commerce.

His work there attracted the attention of the steamship owners, and seven years ago he was invited to take over the duties of secretary. Since that time the new merchant marine program was launched by Congress and greater progress made in the restoration of the American flag to the seas than in the preceding seventy-five years.

Mr. Baker has seen the Association almost double in membership during the past year as the result of his effort, and with the adoption of the pending code shipping interests will be drawn closer together.

● THE MODERN SPHERICAL COMPASS

For the first time in history the magnetic compass has assumed a new form in the Kelvin-White Spherical Compass, invented and perfected by Wilfrid O. White of Boston.

Since the magnetic compass was first made several hundred years ago, the marine compass bowl has always had a flat top glass, until four years ago when Mr. White, in the course of various experiments toward producing a steadier compass, became convinced that if the compass bowl were spherical, instead of the conventional flat type, it would result in greater steadiness of the card at sea.

The reason for this lies in the fact that the motion of a ship, whether it be rolling or pitching or a combination of both, is in a vertical direction, and in a flat top compass the liquid, if distributed in any vertical direction, hits the glass and then swirls around the bowl in a horizontal direction, taking the card with it and causing the unsteadiness that is common to the old type of compass.

However, in the spherical bowl,

the liquid, being in the form of a ball with the card in the center of it, remains still even though the bowl be disturbed in any direction, and therefore, no horizontal swirl is possible. The result is a very steady card. Moreover, in the spherical compass the magnetic element has been redesigned so that the inertia and magnetic moment are in harmonious relation to one another, which produces perfect results.

The combination of the spherical glass bowl and the liquid that fills it completely forms a meniscus lens, magnifying the card to a



Mr. Wilfrid O. White.

marked degree at the further side of the card from the reader where it is most needed. This new steadiness and great visibility are but two of many improvements in the Spherical Compass that make for better and safer courses. The safety factor provided appeals to the ship owner and master, and the fact that the American-Hawaiian Line has ordered these compasses installed on twenty-five of its ships after sea-going tests covering months is conclusive proof of the superiority and value of the Spherical Compass.

Mr. White has always been a strong advocate of dispensing with the binnacle head of the steering compass so that the watch officer can see the compass as well as the helmsman, for no matter how efficient a helmsman may be, he is liable to make a mistake in the course. When the officer can not see the compass, without making a special effort to look in the binnacle through the usual small aperture created for the helmsman, he may find the ship in danger quite unexpectedly. However, with the

Spherical Compass open and visible from all parts of the pilothouse, such danger is practically overcome. That feature in itself is well worthy of consideration.

Kelvin-White Spherical Compasses have been tested on Shipping Board and passenger vessels on trips to South America, Europe and world routes with complete success and enthusiasm for their wonderful steadiness and reliability. The United States Coast Guard and Lighthouse Departments have specified them for their new vessels.

● SHIPPING BOARD CHANGES

General Charles Mck. Saltzman, vice-president of the Merchant Fleet Corporation and member of the advisory committee of the Shipping Board, tendered his resignation as effective February 12.

This withdrawal, which we understand has become official by the acceptance of Secretary of Commerce Roper, leaves as remaining members of the former Shipping Board Bureau, **Thomas M. Woodward** and **Admiral Hutchison I. Cone**.

As recorded in these pages last month, **Henry H. Heimann** was recently appointed as director of the United States Shipping Board Bureau. Director Heimann is in accord with Admiral Cone on the policy of disposing of the last four Government-owned shipping lines, while Mr. Woodward and General Saltzman have maintained for government operation of these lines.

Mr. Heimann has announced the creation of a committee of three to strengthen regulatory work and to apply the powers delegated by congress to stabilize the shipping industry. Admiral Cone heads this committee with **Harry S. Brown** and **F. G. Freiser** as his co-workers.

"Worthington Centrifugal Pumps"—a folder describing the merits of their type UB, two-stage volute pumps, has been recently put out by Worthington Pump and Machinery Corporation, Harrison, N. J. Cross sections of No. 2 and 3-UB two-stage volute pumps, and No. 4 to No. 8-UB-1 two-stage volute pumps, with explanation of parts, as well as a table of specifications, and a chart showing the working of the pumps, are included. Copies may be had free of charge from Pacific Marine Review or the Worthington Corporation.

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FIRST CLASS \$110

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12 Island days
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WEEKLY SAILINGS from Los Angeles Harbor and San Francisco to Honolulu, Yokohama, Kobe, Shanghai, Hongkong, Manila, FORTNIGHTLY to Singapore, Penang, Colombo, and round-the-world ports.

FORTNIGHTLY SAILINGS from Manila, Hongkong, Shanghai, Kobe, Yokohama, and Honolulu to San Francisco, and Los Angeles Harbor.

Atlantic - Far East

WEEKLY SAILINGS from New York, FORTNIGHTLY from Boston to Honolulu, Yokohama, Kobe, Shanghai, Hongkong, and Manila.

FORTNIGHTLY SAILINGS from Manila, Hongkong, Shanghai, Kobe, Yokohama, Honolulu to New York and *Boston.

Mediterranean - U. S. A.

FORTNIGHTLY SAILINGS from Alexandria, Naples, Genoa, and Marseilles to New York, Boston, Los Angeles Harbor, San Francisco, Cargo destined Oakland, Portland, Seattle or Vancouver subject to San Francisco transshipment.

Round-the-World

FORTNIGHTLY SAILINGS between Boston, New York, Havana, Colono, Balboa, Los Angeles Harbor, San Francisco, Honolulu, Kobe, Shanghai, Hongkong, Manila, Singapore, Penang, Colombo, Bombay, Suez, Port Said, Alexandria, Naples, Genoa, Marseilles, thence New York.

Trans-Pacific Freight Service

TRI-MONTHLY SAILINGS between Los Angeles Harbor, San Francisco, Pearl Harbor, Guam, Manila, Cavite, Iloilo, Cebu and other ports as inducement offers.

Intercoastal

WEEKLY SAILINGS from New York, FORTNIGHTLY from Boston to Los Angeles Harbor and San Francisco.

FORTNIGHTLY SAILINGS from San Francisco and Los Angeles Harbor to New York.

Cargo destined or shipped from Oakland, Portland, Seattle or Vancouver subject to San Francisco transshipment.

Dollar Steamship Lines Inc., Ltd.

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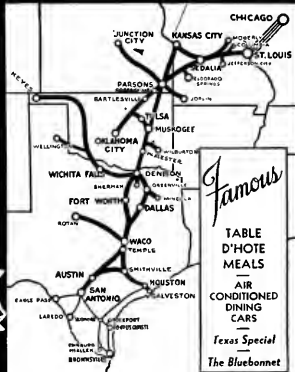
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Dependable Service of the

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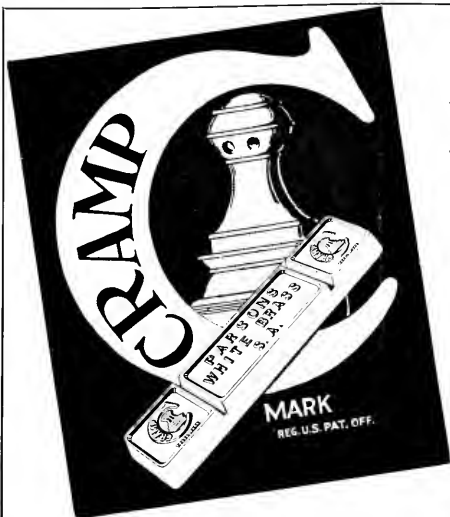
To all
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Kansas,
Oklahoma
and Texas
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Pacific Marine Review

MAY 1934



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Cramp Brass & Iron Foundries Co.

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Pacific Coast Representatives: THE PELTON WATER WHEEL COMPANY, 2929 Nineteenth Street, San Francisco



Official Organ
PACIFIC AMERICAN
STEAMSHIP ASSOCIATION

Official Organ
SHIPOWNERS ASSOCIATION
OF THE PACIFIC COAST

On the **BURLINGTON** HIGH SPEED "Zephyr"

ENGINE BED AND ENGINE CRANKCASE OF LUKENWELD CONSTRUCTION....

"It Had To Have Quality
... the Welding Is Lukenweld
... the Steel Is Lukens' Cromansil"



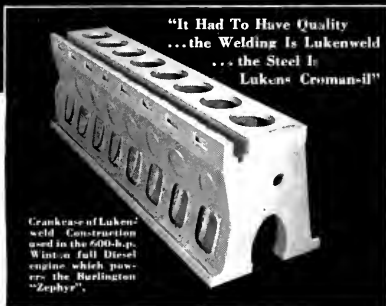
Engine bed of Lukenweld Construction, weighing 6,000 lbs., which supports the 60-h.p. bed of the engine and generator on the Burlington Railroad's high-speed streamlined train, the "Zephyr".

Welding is no innovation in marine machinery and equipment. Many, many dynamically-loaded welded structures, built by Lukenweld, Inc., have been giving satisfactory service for years.

But it is an innovation to see welded construction in an engine bed used on a motive power unit in main line railway service—believed to be the first application of its kind. The high speed, streamlined "Zephyr" of the Burlington Railroad is equipped with the welded engine bed. The 30-ton load of the 600 h.p. Winton full Diesel engine and generator which power the train is supported by the welded bed, which weighs only slightly more than 3-tons.

Logically, this welded bed was designed and fabricated by Lukenweld, Inc., pioneer in the manufacture of welded construction for machinery and equipment. The material employed was Lukens Cromansil Steel. Its superior physical properties, in conjunction with efficient design and fabrication by welding, account for the unusually high ratio of load-carrying capacity to engine bed weight.

"It Had To Have Quality
... the Welding Is Lukenweld
... the Steel Is
Lukens' Cromansil"



Crankcase of Lukenweld Construction used in the 600-h.p. Winton full Diesel engine which powers the Burlington "Zephyr".

In the Winton engine on the "Zephyr," the crankcase is also of welded construction. It, too, was fabricated by Lukenweld, Inc., from Lukens Cromansil Steel. The engine, without generator and auxiliaries, weighs only about 22 lbs. per h.p.

Are you getting the benefit of the improvements that welded construction—Lukenweld Construction—effects in marine machinery and equipment? May we give you the full data? Write today.

LUKENWELD **INCORPORATED**

DIVISION OF LUKENS STEEL COMPANY
COATESVILLE, PENNSYLVANIA

Pacific Marine Review

The National Magazine of Shipping

VOLUME XXXI

MAY, 1934

NUMBER 5

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Official Organ
Pacific American
Steamship Association

James S. Hines
President and Publisher
Bernard N. De Rochie
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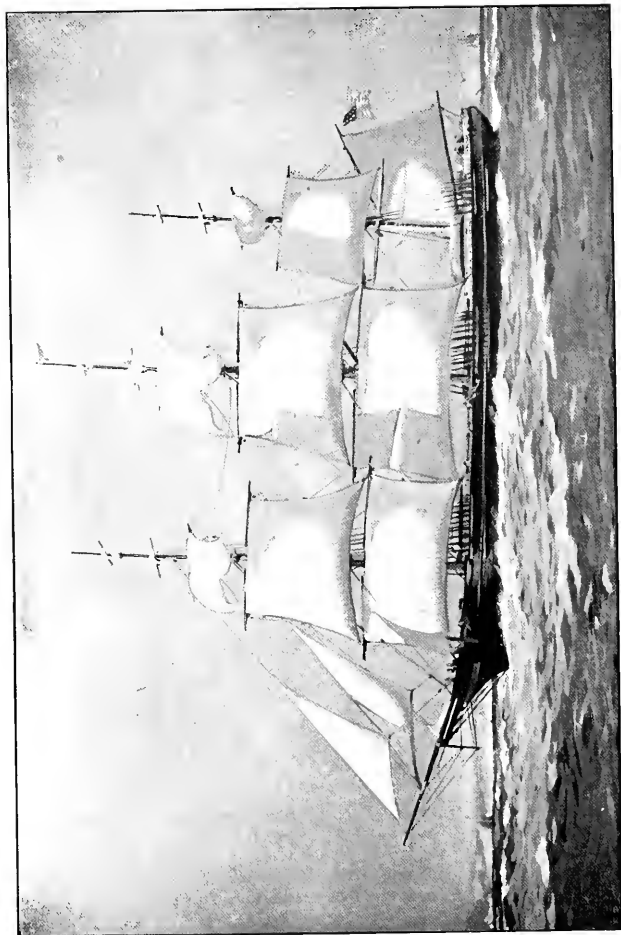
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of the Pacific Coast

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Asst. Editor

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at 17 Battery Place at 25c per copy.



DRAWN BY W. FRANCIS

An American Clipper coming into Port, 1860

Pacific Marine Review

VOLUME XXXI

MAY, 1934

NUMBER 5

Editorial Comment » » »



The Proposed Shipping Code

AFTER many months of conference and labor the Shipping Industry of America has produced a code which is tentatively satisfactory to the National Recovery Administration, and is apparently going to the President for signature. This code is reproduced in this issue, and should be studied carefully by all who are directly interested in American shipping.

It covers all the elements of water borne commerce of the United States, from tow boats in the river, lake or harbor, to the largest ocean liner. It includes commercial vessels of any flag entering harbors of the United States. It dominates all stevedore operations. It governs the operation of public carriers, private carriers, or contract carriers, irrespective of ownership.

This code is therefore a master code, and sets up the organizational structure for such divisional sub-codes as it may be necessary to develop. These sub-codes will be supplemental in their nature and will amplify and clarify the application of the master codes in particular trades and geographical divisions.

A code of such wide scope is necessarily very flexible and elastic in its provisions, and allows wide latitude for the development of the sub-codes in detail, best suited to meet special trade and local conditions.

Provisions of this code make effective the following:

1. Establishment of reasonable levels of minimum charges for services rendered.

2. Assurance of flexibility in the reduction of minimum tariff rates in cases of emergency.

3. Establishment of enough local autonomy in the divisions and sub-divisions to enable the shipping industry to efficiently provide for effective self-regulation and for adjustment of complaints.

4. Cooperation between the National Industrial Recovery Administration, the Shipping Board Bureau, and the Interstate Commerce Commission.

5. Protection against monopolies or against the elimination or oppression of individuals or small firms.

6. Stability of minimum wages, maximum hours, and other working conditions.

7. Machinery within the industry for the conciliation of labor disputes through Divisional Boards with appeal to a National Board.

When we consider the chaotic cargo tariff conditions that have prevailed during the past few years, and the frantic efforts of conferences to bring some stable order out of this chaos, it becomes evident that such a code as is here proposed should be welcome to all American ship operators.

As we are writing word comes from Washington that this code is again being delayed so far as official sanction is concerned by the protests of some foreign flag lines. It may therefore be subject to some minor changes and possibly may be returned to its framers for complete revision. Nevertheless it is well worthy of study because as it stands it represents the mature thought of owners, operators, and employees in the American shipping industry. There were many wise men who predicted a year back that it would be a practical impossibility to produce a shipping code that would be flexible enough to suit shipowners and at the same time rigid enough to suit ship workers. But here it is sufficiently full of everything to suit all the inside folks and yet lacking something or including too much to be agreeable to the outside competitors. We predict that the final form and substance of the accepted Shipping Code will be as little different from this code as Dum is from Dee in the celebrated family of Tweedle.

*Of Ships it is that which everyone should know and say:
They are our Strength; They are our Profit; They are our
Pleasure; They are our Defence; in a word they are the
Common Wealth.*

Twenty-five Years Ago

PACIFIC MARINE REVIEW

First Established and Only Exclusively Marine
Paper Published on the Pacific Coast.

Volume VI. Seattle, Wash., U.S.A., May, 1909. No. 5
Recorded:

The launch of SS. Seattle Maru, building at Kobe for Seattle-Orient service of Osaka Shosen Kaisha.

Maiden voyage of White Star-Dominion Line steamship Laurentic, first large ocean vessel to be fitted with the then new Parsons propulsion scheme of combining exhaust turbines with reciprocating engines. A sister ship, SS. Megantic, not yet complete, was to have quadruple expansion engines, without the turbines, and on the comparative results of sea experience from these two vessels rested the choice of machinery for the SS. Olympic and SS. Titanic then being built.

A paper read at the Institution of Naval Architects, London, April, 1909, describing the 24-knot Isle of Man Channel Turbines, Ben-My-Chree, (A new motorship of the same name and speed, the fastest motorship afloat, has very recently taken over this same service.) The coal consumption of the turbines with direct connected turbines and Scotch marine boilers, 150-pound throttle pressure, and 28-inch vacuum, was 1.87 pounds per indicated horsepower hour. (The diesel oil consumption of the modern motorship on the same service is 0.39 pounds per brake horsepower hour.)

An interesting article on the "Avoidance of Excessive Rolling in Vessels at Sea," contributed by the U.S. Navy Hydrographic Service. (This article is reprinted in part elsewhere in this issue.)

That Cunard Steamship Company announced a profit of a little under one and a half million dollars as compared with well over three million the previous year.

That four million cubic yards of dirt had been excavated during March from the big ditch at Panama, 26,735 cubic yards of rock dumped into the toe of Gatun dam, 2,447 cubic yards of concrete laid in the Gatun spillway.

That Barneson-Hibbard of San Francisco, as agents of the Tye Company, reported a good year in oil and fertilizer derived from Alaska whales.

That the Pacific charter and freights market was in "a lethargic state"—too many steamers, not enough freight. Lumber and grain were being carried then almost as cheaply as today.

Federal Coordination of all Transportation

WITH a satisfactory Shipping Industry Code drawn up, and in the hands of the N.R.A. for approval, it is of great interest to note that the I.C.C. is studying a report submitted to that body by Joseph B. Eastman, Federal Coordinator of Transportation. This report concludes:

That the entire transportation industry, including shipping, needs "the guiding hand of government control" if we are to avoid "a threatening chaos" and transform it "into order";

That the best agency to assume such control is the Interstate Commerce Commission;

That such control should fix the appropriate functions of each form of transportation and prevent wasteful duplication of service without eliminating economic competition;

And, that each form of transportation should be protected in its established functions, and a system of stable rates be erected on a firm basis.

Drafts of proposed legislation for effectuating these purposes are attached to the report. Among these is a Water Carrier Bill which, if passed, would regulate all water borne commerce, including Foreign, Interstate and Intra-state.

Some of the provisions in this tentative draft are:

Public filing of, and strict adherence to, all tariffs required, with change permitted only on 30 day notice;

Certificates of public convenience and necessity required of common carriers before beginning or extending any Inter-state operations;

Through rates, joint rates, and divisions thereof to be established by arrangement under control of the I.C.C.;

Common carriers prohibited from carrying commodities owned in whole or in part by themselves, except as necessary for the use of the carrier;

Contract carriers prohibited from destructive competition with common carriers;

Private carriers prohibited from operation as common or contract carriers;

Ample penalties for violations.

There is little danger (or hope) of any action being taken on this legislation during this session of Congress. Undoubtedly, however, this legislation will be in the background as a substitute in case the Shipping Code fails to cure the evils now attendant on the industry. There will be many powerful forces seeking to extend I.C.C. control to include shipping. The shipowner will need to watch this legislation next winter, and had better begin to study it very carefully, or he will once more find his propellers tied up with red tape.

Waterspouts

SECOND OFFICER C. GENTER, of the American steamer Santa Paula (Capt. A. C. Paulsen) reports that on March 19, 1934, between 1 p.m. and 5 p.m., twenty waterspouts in various stages of formation were observed between lat. 33 deg. N. and lat. 34 deg. N., in lon. 76 deg. W.

Four of these waterspouts were well formed and funnel-shaped, the water columns extending from the sea level up the lower strata of clouds. The columns of water observed changed form, apparently caused by changes in the direction of the wind. The wind shifted

rapidly from southeast to northwest, anticlockwise, in short blasts with a short interval between blasts, the force of the wind being from 3 to 6.

The balance of these spouts were only partially formed, with water and spray extending from 50 to 200 feet above sea level and having a diameter of practically the same dimensions.

All of the spouts were observed to be rotating anticlockwise and traveling in a northeast-southwest direction with a speed of from 25 to 30 miles an hour. The sea was choppy and confused in the vicinity of the spouts.

The temperature of the air was 70 deg. F. and of the sea 76 deg. F. The barometer reading was 29.74 inches. The sky was completely overcast with heavy rain clouds of dark-gray color, moving in a northeast-southwest direction at a speed of from 25 to 30 miles an hour.

—Hydrographic Bulletin.

The Avoidance of Excessive Rolling in Vessels Engaged in Oceanic Transportation Hydrographic Service, U.S.N.

In the transportation of coals and explosives, and in all those cases in which the attrition caused by excessive rolling may give rise to ignition, occasions arise when it is highly desirable so to lay the vessel with reference to the progress of the waves that the rolling may not become excessive; and this is also the case in the transportation of live freight, and in those voyages, constantly taking place in many trades which have to be undertaken with little or no cargo on account of the absence of return freights, and in which it is necessary, for seaworthiness and proper immersion of the propellers, to sink the vessel by means of water ballast. This has usually been placed in the double-bottom compartments with the result of lowering the center of gravity of the vessel so far as to give a largely increased metacentric height and a consequent shortening of the vessel's period of rolling to such an extent as to bring it into approximate coincidence with the half-period of the particular waves met with on the voyage. A vessel in this condition may readily be laid among the waves by an uninformed mariner so that she is actually unsafe.

Merchant vessels have natural periods of rolling, ranging downward from about fifteen seconds in the great trans-oceanic liners to very much smaller periods in those vessels in which a good metacentric height has been secured, while the radius of gyration has remained necessarily small on account of the small dimensions of the vessel. It is important that rolling experiments should be more commonly performed with merchant vessels, and that mariners should be accorded the bene-

| Name of ocean— | Year of observation | Force of wind— | State of sea | Wave Height— | Length— | Period— |
|-----------------|---------------------|----------------|--------------|--------------|---------|---------|
| Atlantic | 1886 | 10 | Confused | 25 | 375 | 7.5 |
| Indian | 1885 | 4 | Do | 25 | 450 | 11.0 |
| Do | 1885 | 4 | Do | 25 | 500 | 13.0 |
| Do | 1885 | 4 | Do | 24 | 400 | 12.0 |
| Pacific | 1886 | 2 | Long swell | 22 | 350 | 10.0 |
| Indian | 1885 | 4 | Confused | 22 | 400 | 10.0 |
| Atlantic | 1886 | 8 | Regular | 21 | 328 | 8.0 |
| Indian | 1885 | 4 | Confused | 21 | 400 | 9.0 |
| Atlantic | 1886 | 7 | Regular | 18 | 318 | 7.5 |
| Indian | 1885 | 4 | Confused | 18 | 300 | 8.0 |
| Do | 1885 | 4 | Do | 18 | 250 | 9.0 |
| Do | 1885 | 4 | Do | 18 | 400 | 12.0 |
| Do | 1885 | 4 | Do | 16 | 350 | 9.0 |
| Do | 1885 | 1 | Do | 16 | 350 | 11.0 |
| Do | 1885 | 4 | Do | 15 | 200 | 8.0 |
| Do | 1885 | 4 | Do | 15 | 150 | 7.0 |
| Do | 1885 | 4 | Do | 15 | 300 | 9.0 |
| Do | 1885 | 4 | Do | 15 | 250 | 9.0 |
| Pacific | 1886 | 1 | Do | 12 | 276 | 5.0 |
| China Sea | 1883 | 5 | Do | 11 | 167 | 6.8 |
| Pacific | 1883 | 8 | Irregular | 10.5 | 209 | 6.7 |
| Do | 1883 | 6 | Confused | 8 | 191 | 6.1 |
| Do | 1886 | 1 | Swell | 8 | 400 | 10.0 |
| Pacific (South) | 1883 | 5 | Confused | 8 | 249 | 7.0 |
| Pacific | 1885 | 4 | Do | 8 | 100 | 7.0 |
| Pacific (South) | 1885 | 2 | Regular | 7 | 100 | 6.0 |
| Do | 1885 | 2 | Do | 6 | 80 | 5.0 |
| Pacific | 1885 | 1 | Do | 6 | 100 | 6.0 |
| Atlantic | 1886 | 4 | Do | 5 | 261 | 7.7 |
| Do | 1886 | 0.1 | Do | 5 | 314 | 8.3 |
| Pacific | 1885 | 1 | Do | 5 | 60 | 5.0 |
| Caribbean Sea | 1887 | 3 | Do | 4 | 100 | 8.0 |
| Pacific | 1885 | 0 | Do | 4 | 50 | 5.0 |
| Caribbean Sea | 1887 | 3 | Do | 3 | 50 | 4.0 |
| Atlantic | 1887 | 4 | Do | 3 | 30 | 3.0 |
| Caribbean Sea | 1887 | 3 | Do | 2 | 40 | 4.0 |

fit of being made conversant with the resulting periods of rolling.

● Dimensions and Period of Waves.

Many observations upon the dimensions of waves at sea have been collated and discussed, and it is found that, in different conditions of the weather and different configurations of the waters of the globe, their periods vary from three or four seconds to fifteen or sixteen seconds. In 1839 the officers of the United States exploring expedition made accurate observations upon a regular series of waves in the region of Cape Horn, and found them to have a height of 32 feet, and a length of 380 feet, and a period of 8.7 seconds. Dr. William Scoresby made a report to the British Assn. for the Advancement of Science, in 1850, in which he states the results of the observations of waves made by him in the Atlantic Ocean in 1848. The greatest distance from crest to crest observed by Dr. Scoresby was 790 feet, and the average distance 559 feet, and the period or interval of time between waves was sixteen seconds. This is also found to be the period of waves in the South Pacific Ocean, in the average seas that are met with between New Zealand and Cape Horn.

● Observations Upon Sea Waves by U.S. Naval Officers

A large number of observations, embracing the height, length and period of ocean waves, have been taken by officers of the United States Navy.

[Abstract of Article Published in Pacific Marine Review May, 1909]

Proposed Code of Fair Competition for the Shipping Industry

● Article I—Purpose

To effectuate the policies of Title I of the National Industrial Recovery Act, this Code is submitted as a Code of Fair Competition for the Shipping Industry, and, upon approval by the President, its provisions shall be standards of fair competition for such industry and shall be binding upon every member thereof. This Code may be referred to as the General Shipping Code.

● Article II—Definitions

Section 1. As used in this Code and the Division and Subdivision Codes words and phrases have the following meaning:

(a) "Act", "Administrator", and "President" means respectively the National Industrial Recovery Act, the Administrator for Title I of the Act, and the President of the United States.

(b) The term "Shipping Industry" includes—

- (1) the operation by owners, operators or agents of all vessels of all flags engaged in the foreign and domestic commerce of the United States, and
- (2) the business of contracting stevedores and such other operations as may be found by the Administrator properly to be within the shipping industry.

Definitions (C) to (M) are the obvious meanings of common words and are omitted here in the interests of brevity.

(n) "Qualified Vote" means a single vote to be cast by the owner and/or operator and/or agent combined for each "carrying unit"; provided that when used in Section 10 (a) of Article IV the term "qualified vote" shall mean a single vote to be cast by the owner and/or operator and/or agent combined for each complete 20,000 gross registered tons of vessels included in each carrying unit; provided, further, that if a vote is taken during an open navigation season at least one vessel of the "carrying unit" shall have been loaded and sailed or scheduled to sail within thirty days of the vote. If American and foreign flag vessels constitute part of the same carrying unit, then, if the gross registered tonnage of the American vessels exceeds that of the Foreign vessels, the qualified vote shall be cast only with the American Members of the Division; otherwise only with the foreign Members of the Division.

● Article III—Application

Section 1. This Code shall apply to all owners, oper-

SCHEDULE A

The minimum rates of pay for personnel aboard American flag vessels together with quarters, subsistence, maintenance, and cure as customary shall be as follows:

| | Per month |
|---|-----------|
| Chief Engineer..... | \$200 |
| 1st Officer and 1st Asst. Engineer..... | 150 |
| 2nd Officer and 2nd Asst. Engineer..... | 120 |
| 3rd Officer and 3rd Asst. Engineer..... | 110 |
| Carpenter..... | 60 |
| Boatswain..... | 50 |
| Quartermaster..... | 55 |
| A.B. Steward..... | 50 |
| Ordinary Seaman..... | 35 |
| Water Tenders..... | 60 |
| Others..... | 60 |
| Firemen (Oil Burners)..... | 50 |
| Firemen (Coal Burners)..... | 52.50 |
| Coal Passers..... | 40 |
| Wipers..... | 37.50 |
| Chief Steward..... | 160 |
| Combinatorial Steward and Cook..... | 100 |
| Chief Cook..... | 85 |
| 2nd Cook and Baker..... | 60 |
| Messmen..... | 40 |
| Messboys..... | 30 |
| Cabin Stewards and Waiters (Passenger ships)..... | 40 |
| Senior Wireless Operators..... | 80 |
| Junior Wireless Operator..... | 70 |
| Senior Wireless Operator (when only 1 carried)..... | 85 |

The members of the deck and engine departments on all sea-going vessels shall while at sea be divided into three (3) watches, except that members of the deck and engine departments other than officers, sailors, firemen, oilers, water tenders, and coal passers who are not required by law to be divided into watches may be worked for eight (8) hours in any twenty-four (24) hour period. They shall not be required to perform any work at sea when off watch except such work as is necessary for the safety of the vessel, passengers, crew, or cargo.

Eight (8) hours shall constitute the maximum work day in port for the deck and engine departments. No overtime shall be paid in any department except as may be provided for in any Division or Subdivision Code.

Workings shall not be carried to the exclusion of members of the crew.

(15)

The Shipping Code would make this scale of minimum rates of pay apply on all foreign and domestic sea trades except interisland trades of Puerto Rico and Hawaii, Pacific Coast steam schooners, and Alaska trades.

ators, agents, and contracting stevedores of all vessels of all flags engaged in the foreign and domestic commerce of the United States, and all other operations as may be found by the Administrator properly to be within the shipping industry. Any Member of the Industry may become a Member of the Code by filing written assent to the Code substantially in the form hereto attached, marked Appendix I.

● Article IV—Organization

Section 1. Members of the Industry shall be divided into four groups, as follows:

(a) Group I shall include all Members of the Industry concerned with vessels carrying freight or passengers in foreign or domestic commerce not included in the other groups.

(b) Group II shall include all Members of the Industry concerned with vessels carrying freight or passengers on inland waterways and the Great Lakes except vessels included in Group III and passenger and self-propelled cargo vessels on coastal bays and sounds and the Hudson River.

(c) Group III shall include all Members of the Industry concerned with local service vessels, such as towboats, lighters, barges, ferries and all similar vessels.

(d) Group IV shall include all Members of the Industry engaged in the business of contracting stevedores and such other operations as may be determined by the Administrator.

(e) The Administrator may transfer Members of the Industry from one group to any other group.

Section 2. Subdivides Group I into ten divisions by

location and service and permits further subdivision of Group as required.

Section 3. Subdivides Group II into five geographical divisions and permits other subdivisions as found necessary.

Section 4. Members of the Industry concerned with vessels included in Group III shall be organized into divisions, including subdivisions thereof, on the basis of types of vessels, or kinds of service, or geographical limits, as approved by the Administrator.

Section 5. Members of the Industry comprising Group IV shall be organized into divisions, including subdivisions thereof, on the basis of kinds of service, or geographical limits, and may adopt their own rules or procedure, as approved by the Administrator.

Section 6 (a) The Members of each Division shall elect a Chairman who shall preside at all meetings, and a Secretary who shall keep a minute record of the proceedings of all meetings, both of whom shall perform such other duties as may be directed by the members. The members may be represented by proxy. The Members of each Division shall have power to determine the proportionate part of the cost of administering this Code and the Division Code hereinafter provided for, which shall be borne by the Members of the Industry engaged in the Trade of the Division, upon the basis of the gross registered tonnage operated in such trade, or other equitable basis, or as otherwise may be agreed, which costs of administration shall only include compensation to and expenses of members of the National Shipping Labor Board, as provided for in Section II of Article V hereof, the expenses of the Division Code Authorities, reimbursement to the National Recovery Administration for the salaries and expenses (including office expenses) of the four principal Administration Members provided for by Section 2 of Article VIII hereof, and and such other expenses as may be authorized by the Members of the Division, all subject to the approval of the Administrator and the Members of the Division; to recommend to the Division Code Authority amendments to, exceptions from and modifications of the Division Code; and shall, either themselves or by delegation to the Code Authority, collect all necessary information and statistics that may be required under the Act; may appoint and empower committees to act in their behalf; engage attorneys, statisticians, accountants, research workers and clerical assistants, and fix their compensation; and may do generally all things permissible under the Act and under the Division Code and necessary to effective administration of the Division Code, including the delegation of authority to the Division Code Authority as hereinafter provided. Rules of procedure may be adopted governing the conduct of the business of the division. The action of the Members of any Division, other than a Foreign Trade Division, on all matters coming before them shall be determined by two-thirds of all the qualified votes of all Members of the Division, or as otherwise may be agreed, except that Members of the Division Code Authority shall be elected as hereinafter provided.

(b) In addition to the information and statistics required to be submitted as provided in (a) above, the Members of the Industry shall furnish to Federal and State agencies such statistical information as the Ad-

ministrator may deem necessary for the purposes recited in Section 3 (a) of the Act; provided that nothing in this Code shall relieve any member of the Industry of any existing obligations to furnish reports to any governmental agencies.

Section 7. The action of the Members of any Foreign Trade Division on all matters coming before them may be determined by a unanimous vote of all the qualified votes of all the Members of the Division, except that the members of the Division Code Authority shall be elected as hereinafter provided. In the event of the Members of the Foreign Trade Division failing to agree, as above provided, on any matter submitted to them, then the members concerned with American flag vessels and the members concerned with foreign flag vessels shall vote separately, and the action of the division shall be determined by a majority vote of the qualified votes of each of the two groups. If a majority of both groups fail to agree, then the matter shall go to the Division Code Authority. An appeal from an action of the Division Code Authority, or from the failure of the Code Authority to act, may be taken by a Member of the Division to the Administrator, whose decision shall be final.

Section 8. Any subdivision organized pursuant to the above authorizations shall be organized in the same manner as a division. Members of the Subdivisions shall have and may exercise similar power and authority to that vested in Members of the Division; shall have similar voting rights on matters coming before the subdivision as are enjoyed by Members of the Division; shall be subject to all appropriate provisions of this Code governing divisions; may adopt rules of procedure governing the conduct of the business of the subdivision; and may elect a Subdivision Code Authority as hereinafter provided. All Subdivision Code Authorities shall have the same status, authority, and procedure as Division Code Authorities.

Section 9. If the organizing provisions of Sections 6, 7 and 8 above are impracticable of application to the divisions and subdivisions organized under Groups II, III, or IV then such divisions and subdivisions may be organized in the manner approved by the Administrator.

Section 10 (a). A Division and Subdivision Code Authority, or other governing body, comprised of such numbers as shall be determined by each division and subdivision, shall be elected by the Members of the Divisions and Subdivisions, respectively, of Group I, unless otherwise agreed, by a majority qualified vote; except that in each Foreign Trade Division and Subdivision the members concerned with American flag vessels and the members concerned with foreign flag vessels shall each separately elect by a majority qualified vote an equal number of members of the Division and Subdivision Code Authorities, respectively, provided that in all of the above elections each Member of the Division or Subdivision shall have or participate in at least one qualified vote. The members of Division and Subdivision Code Authorities shall each hold office for one year and until a successor shall have been chosen. They may be removed for good cause, after notice and hearing, by the divisions or subdivisions electing them. Vacancies shall be filled in the manner provided for original election.

(b) Division and Subdivision Code Authorities, or other governing bodies, for each division and subdivision of Groups II, III, and IV shall be elected by the Members of the Divisions and Subdivisions, respectively, in the manner and of the number determined by them by majority vote, and, failing such determination, as may be prescribed by the Administrator. They shall hold office, be removed, and vacancies shall be filled as provided in paragraph (a) above.

Section 11. Each Division and Subdivision Code Authority shall designate a Chairman, who need not be a Member of the Industry and whose duties shall be prescribed by the Code Authority. The Code Authority may organize its meetings and adopt its own rules of procedure, except that a majority of the members thereof shall be necessary to constitute a quorum at any meeting, and a majority vote of all the members shall be required for any action. It may appoint a Secretary, appoint and empower committees and individuals to act in its behalf, engage attorneys, statisticians, accountants, research workers, and clerical assistants, and fix their compensation. It shall be the duty of the Code Authority, and they shall have authority under this Code and under the Act, subject to the review and disapproval of the Administrator:

(a) Generally to perform such acts within the Code as may be prescribed by Members of the Division or Subdivision, and to all things necessary to an efficient administration and to effect compliance with the Division or Subdivision Codes, in conformity with the Act.

(b) As Trustee for all Members of the Industry engaged in the Trade of the Division or Subdivision, in order to support the administration of this Code and/or the Division or Subdivision Codes, to collect from and bring about equitable contribution by all such members, and to that end to determine, and, if necessary, sue for the proportionate part of the cost of administering this Code and/or the Division or Subdivision Codes which shall have been determined by the Members of the Division or Subdivision as provided in Section 6 above, and to disburse the amount so collected, all as may be approved by the Administrator.

(c) To issue explanations of the provisions of any Division or Subdivision Code, which shall constitute a prima facie construction of their meaning and application.

(d) To hear an appeal by any Member of a Division or Subdivision from any action taken by the Members of the Division or Subdivision, and to affirm, modify, or reverse such action. Pending such appeal the action may be suspended.

(e) To hear an appeal by any Member of a Division or Subdivision from any failure to take action on any proposal regularly brought before such members, and to approve or disapprove such failure. If the Code Authority directs that the proposal be acted upon, and the Members of the Division or Subdivision thereafter fail to do so, then if the proposal is designed to amend or supplement any Division or Subdivision Code, any member may present the proposed amendment or supplement to the Administrator, and, upon his approval, after such notice and hearing as he may prescribe, such amendment or supplement shall become a part of the Division or Subdivision Code.

(f) To hear and investigate all complaints of viola-

tions of the Division or Subdivision Code, subject to regulations issued by the Administrator.

(g) To suspend as a Member of the Code anyone found guilty of violating the Division or Subdivision Code, or failing to file written assent to the Division or Subdivision Code.

(h) To foster the formulation of arbitration agreements, either limited or general, between parties affected by the Division, or Subdivision Code for the purpose of settling controversies arising thereunder.

(i) Where the Code Authority is of the opinion that this Code or the Division or Subdivision Code has been or is being violated, the Code Authority shall endeavor to effect compliance amicably, or assist the complaining party in bringing complaints of violation before the proper authority.

Section 12. If the Administrator shall determine that any action of Members of the Code or a Division or Subdivision Code, or of any agency thereof, may be unfair or unjust or contrary to the public interest, the Administrator may require that such action be suspended to afford an opportunity for investigation of the merits of such action and further consideration by such members or by such Code Authority or agency pending final action, which shall not be effective unless the Administrator approves or unless he shall fail to disapprove after thirty days' notice to him of intention to proceed with such action in its original or modified form.

Section 13. In order that Code Authorities shall at all times be truly representative of the Members of the Industry and in other respects comply with the provisions of the Act, the Administrator may prescribe such hearings as he may deem proper, and thereafter, if he shall find that any Code Authority is not truly representative of the Members of the Industry or does not in other respects comply with the provisions of the Act may require an appropriate modification in the method of selection of the Code Authority.

Section 14. Members of each Division and Subdivision shall, by actions taken in the appropriate manner respectively authorized by the provisions of Sections 6, 7, and 8 above, propose codes supplemental to this General Shipping Code, each to be appropriately designated (name of Division or Subdivision) Division Code, which may establish standards of fair competition for the Members of the Industry, and may provide for the regulation of any other matter with which the division or subdivision may be especially concerned. Such codes shall, upon approval by the President, be codes supplemental to and a part of this Code, and shall establish standards of fair competition, and be Codes of Fair Competition, under and pursuant to the Act, for the Members of the Industry; provided that the President may, before approving any proposed Code, hold, or cause to be held, by any federal officer or employee, department, commission, or bureau of the Government, such public hearings on any proposed code as he may determine to be advisable in the public interest. Written assent to a Division or Subdivision Code may be filed by the Members of the Division or Subdivision with the Division or Subdivision Code Authority, and failure to do so shall disqualify the party in default as a Member of the Division or Subdivision and of this Code, but shall not relieve such party from the duty of complying with the Division or Subdivision Code or this

Code, in accordance with the provisions of the Act.

Section 15. Proposals for the amendment or supplementation of a Division or Subdivision Code may, with the approval of the Members of the Division or Subdivision, be made by the Division or Subdivision Code Authority, and, upon approval by the Administrator, after such notice and hearing as he may prescribe, such amendments and supplements shall become a part of a Division or Subdivision Code and of this Code.

Section 16. Proposals for the amendment or supplementation of this Code, if approved by a majority of the Division and Subdivision Code Authorities and ratified by two-thirds of all the divisions and subdivisions, shall, upon approval by the President, after such notice and public hearing, as he may prescribe, become a part of this Code.

Section 17. The cost of administering this Code, provided by Section 6 above to be borne by the Members of the Industry, shall be equitably apportioned among the divisions and subdivisions by the Administrator.

● Article V—Labor

Section 1. (1) Employees shall have the right to organize and bargain collectively through representatives of their own choosing, and shall be free from the interference, restraint, or coercion of employers of labor, or their agents, in the designation of such representatives or in self-organization or in other concerted activities for the purpose of collective bargaining or other mutual aid or protection; (2) no employee and no one seeking employment shall be required as a condition of employment to join any company union or to refrain from joining, organizing, or assisting a labor organization of his own choosing; and (3) employers shall comply with the maximum hours of labor, minimum rates of pay, and other conditions of employment, approved or prescribed by the President.

Section 2. No individual under sixteen years of age shall be employed in the industry, and no individual under twenty-one years of age shall be employed as a stevedore.

Section 3. Provisions fixing minimum rates of pay, maximum hours of labor, and other conditions of employment on board American vessels shall be inserted in each Division and Subdivision Code and made applicable to the operations of the Members of the Industry subject to the jurisdiction of the respective codes; provided that the minimums and conditions contained in Schedule A hereto attached shall be incorporated as minimums and conditions in divisional codes of the Divisions or Subdivisions of Group I, in respect to American vessels, except codes of Bays and Sounds Divisions or Subdivisions and codes applicable to interisland trades of Puerto Rico and Hawaii, and Pacific Coast steam schooners, and Alaskan Trades; provided, further, that the provisions of said Schedule A shall not themselves fix maximum rates of pay for the classifications of employment listed in said schedule.

Section 4. Longshoremen, tally clerks, checkers, cargo repair men, maintenance men, and all other dock workers, except watchmen, baggage clerks, and ship caretakers, shall not be employed for more than forty-eight hours in any week averaged over a period of four weeks.

Section 5. The minimum rates of pay at each port for longshoremen, tally clerks, checkers, cargo repair

men, maintenance men, watchmen, baggage clerks, and all other dock workers employed on an hourly or daily basis shall be as specified in the applicable division or subdivision codes; provided, however, that pending the adoption of the division or subdivision codes the wages actually paid on February 1, 1934, shall not be reduced.

Section 6. No person employed in clerical or office work shall be permitted to work in excess of forty (40) hours in a week averaged over a period of eight (8) weeks. An average work day shall not exceed eight (8) hours provided that this shall not apply to outside solicitors or to persons employed in a managerial or executive capacity who earn not less than thirty-five (\$35.00) dollars per week.

Section 7. The pay of the classes of employees mentioned in the preceding section shall not be less than fourteen (\$14.00) dollars per week, provided that office boys and girls and messengers may be paid not less than eighty (80) per cent of such minimum wages, but the number thereof shall not exceed five (5) per cent of the total number of employees covered by the provisions of this section.

Section 8. (a) No employee shall knowingly be permitted to work for two or more employers for a longer period than permitted herein for a single employer.

(b) No employer shall reclassify employees or duties of occupations while continuing the same class of labor, or engage in any other subterfuge for the purpose of defeating the purposes or provisions of the Act or of this Code.

(c) Within ten days (10) after the effective date hereof, each employer shall post, and thereafter maintain in conspicuous places accessible to employees, full copies of this Code and any amendments or modifications which may later be approved.

Section 9. (a) Compensation for employment now in excess of the minimum wages specified in the preceding sections five (5) and seven (7), shall not be reduced notwithstanding that the hours worked in such employment may be reduced.

(b) Pending the adoption of Division and Subdivision Codes wages paid to employees on American vessels of Group I, except vessels of the Bays and Sounds Divisions and Subdivisions, vessels engaged in the interisland trades of Puerto Rico and Hawaii, and in Alaskan trades, and Pacific Coast steam schooners, shall not be less than the rates of pay set forth in Schedule A.

(c) Provisions in this code, or in any Division or Subdivision Code, shall not supersede any law within any State which imposes more stringent requirements on employers with respect to age of employees, wages, hours of work, safety, health or sanitary conditions, insurance, fire protection, or any other working conditions imposed by this Code or any Division or Subdivision Code.

(d) Provisions in this code, or in any Division or Subdivision Code, shall not supersede provisions with respect to hours, wages, and conditions of employment as to specific projects required therefor by competent governmental authority acting in accordance with law.

(e) The Administrator shall appoint a committee of six to study maximum hours of employment of employees in the Steward's Department of American ves-

(Please turn to Page 142)

Scientific Research Brings Success

Noted Diesel Engine Builder Points the Way to Improved Business Conditions

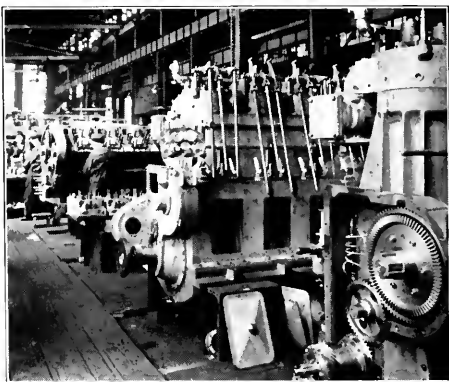
Our publisher, Mr. James S. Hines, on his annual business trip to the Atlantic Coast and the Middle West, has been much impressed with the courage and initiative shown by the management of certain firms in out-guessing depression and maintaining payroll. A notable example of this was found on his visit to the plant of the Winton Engine Corporation at Cleveland, Ohio, designers and builders of internal combustion power plants for marine, industrial, railroad, pipe line, irrigation, government and public utility applications.

This firm having continued to go out aggressively after business through all the lean years (now happily passing) is reaping the benefits of this policy in a plant that has become so crowded with work as to require an additional building devoted exclusively to testing finished engines.

Up to the late months of 1929 a large portion of this company's business came from the marine and railroad fields—powering fine yachts and commuters, all kinds of workboats—such as tow-boats, tankers, dredges and numerous types of government vessels—as well as rail cars for the country's big railroad systems. With the general decline in business in 1930, the company found itself facing the same conditions that confronted thousands of other companies all over the country—a condition that demanded skill, courage, and leadership if it were to be met successfully.

● Challenge of Depression

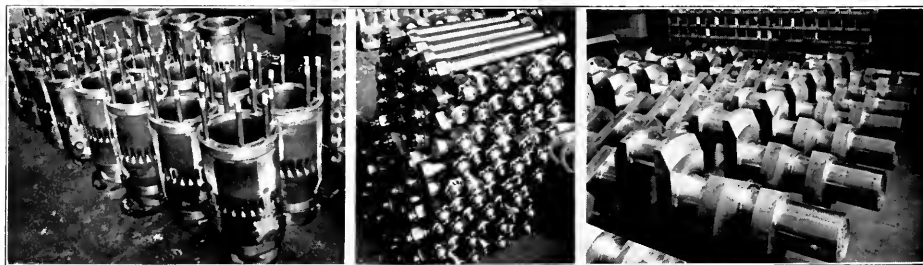
How Winton met the depression is thus described by George W. Codrington, the company's president: "In the early days of the depression, we decided that the thing for us to do was to find new sales fields and new uses in those fields for our products. This meant a lot of hard work in the way of experimenting and research, and after that, much missionary work in developing



Winton diesels in the assembly line.

suitable sales outlets. It is perhaps only fair to say that we had an ace up our sleeves in our close association with General Motors Research Laboratories. We enjoy a tremendous advantage in having the vast engineering resources of this great organization always available for research and development work. The diesel-type engine was just beginning to come into its own when the depression hit us. By continuing the development work which was then under way, we have been able to refine this type of prime mover so that it is today the most suitable power plant available for many purposes heretofore considered outside the diesel's range."

One interesting development of Winton power is its application to new high-speed railroad passenger



Parts for Winton diesels ready for assembly. Left to right: Cylinder liners for Model 201-A two-cycle diesel; main bearing bolts; Erie forged steel crankshafts.

The assembly bay in the Winton Diesel Engine shops at Cleveland, showing railway and marine engines under way. This bay is served by two large overhead electric cranes, not shown in picture.



trains. Winton engines have been in use on practically all of the big American railway systems for more than ten years, but their use in this field, up to the present, has been confined to powering cars for local main line and branch line passenger service. With the new and significant application to equipment for high-speed main service, the Winton organization not only have developed a promising new sales field for their products, but have also assisted the railroads to get back into the fight for a fair share of the country's passenger traffic. It is a foregone conclusion that this means additional business for Winton, and incidentally, it means that by helping the railways in this manner, Winton has played an important part in promoting business recovery.

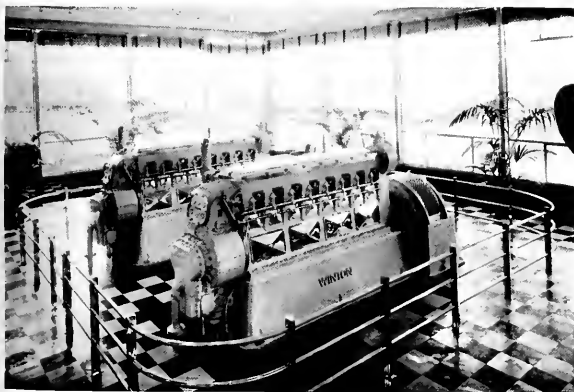
● Union Pacific Train

A throng of 400,000, including President Roosevelt, Washington statesmen, and eastern railroad officials, greeted the new Winton-powered Union Pacific train on its eastern inaugural exhibition tour. Following its return to Chicago for exhibition in the Chicago and

North Western Terminal late in February, the new train headed west for a tour of the Union Pacific system, with stops ranging from a few hours to a day or more.

Believing that the restoration of a satisfactory volume of passenger business to the rails is dependent on the development of a radically different type of passenger equipment, the management of the Union Pacific system, early in 1933, authorized the expenditure of \$200,000 for such a train to provide safe, fast, and comfortable transportation at a minimum cost. The order for this train was placed with the Pullman Car and Manufacturing Corporation, which cooperated in designing, and completed the building of the first three-car train. Driven by a 600 horsepower, 12-cylinder, distillate-burning, Winton engine, with electric transmission, this train will be operated on special runs between the larger cities on the Union Pacific system, with the purpose of demonstrating its practicability for regular main-line through passenger train service, including trans-continental.

This light-weight, stream-lined train is expected to



One of the most attractive and popular of the engineering exhibits at the Century of Progress Exposition last year in Chicago was this Winton diesel electric power plant in the General Motors Building. It was in operation supplying electric energy for various lighting, heating and power applications in the Building.

develop a speed of 90 miles per hour on tangent level track, and a maximum speed, under favorable conditions, of 110 miles per hour. The Union Pacific has ordered from the same car builder three new trains, one of six articulated cars, including a power car with a 900 horse-power, 12-cylinder, V-type Winton Diesel engine; the other two, nine-car units, with mail and

baggage cars, coaches, and sleeping cars, and each propelled by a 1200 horsepower Winton Diesel engine.

● Burlington Zephyr

Another new type of motor train, known as the Burlington "Zephyr," for the Chicago, Burlington, and Quincy railroad, has very recently been completed at the Philadelphia works of the E. G. Budd Manufacturing Company. This train was designed by Holabird and Root, Chicago, and Paul Cret, Philadelphia. Engineers from the United States Steel Corporation, General Motors Corporation, Winton Engine Corporation, and the Burlington staff scrutinized every step of the development. Travel experts call the Burlington's new train "a sensational answer to the inroads on passenger travel by busses and private cars, and a challenge likewise to air transportation."

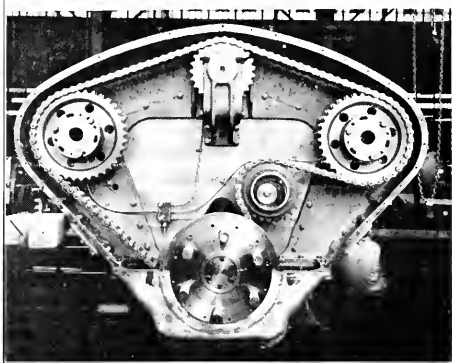
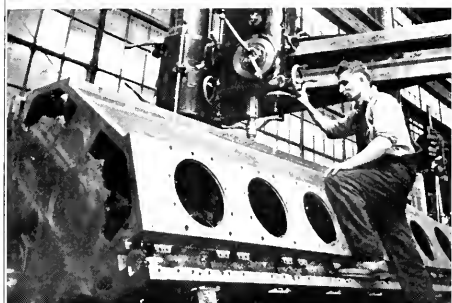
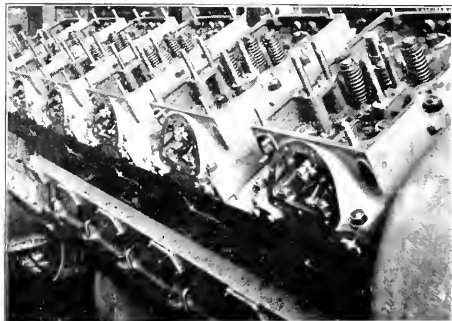
Developed by Winton, in collaboration with General Motors Research Laboratories, to meet the Burlington's requirements in powering this new high-speed passenger train, the main power unit is an eight-in-line, two-cycle, airless injection, 600 horsepower Winton-Diesel engine, directly connected to an electric generator.

This is the first time in railroad history that an engine of this type has been used in this country in rail car operation.

Oil is used for fuel. Especially important, particularly in this modern high-speed railroad equipment, is the engine's low operating cost. The saving effected in this direction will help materially in absorbing the reduction in passenger fares recently made. This advanced-type engine will supply power to drive the Burlington "Zephyr" along the rails with the speed of an airplane.

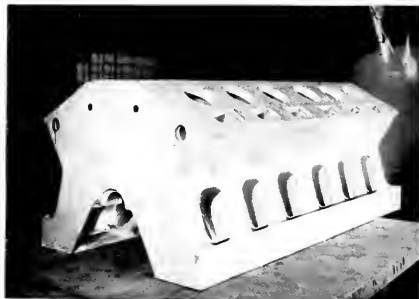
The complete motorized train represents months of survey, investigation and tests conducted jointly by engineers from the Burlington, General Motors, and subsidiaries, the E. G. Budd Manufacturing Company of Philadelphia, and the laboratories and testing facilities of the United States Steel Corporation. There will be available for passengers, a small buffet organized along modern lines. Suitable provision will be made for mail, baggage and express. In fact, the train will be an all-contained unit for practical operating purposes.

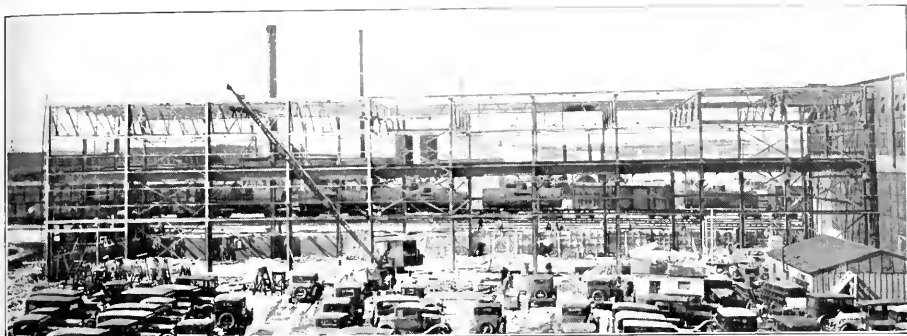
In addition to these railroad applications, the Winton



Above three detail views of the Winton Model 201-A, two-cycle diesel in the Winton shops. Upper: Tops of cylinders on one side; center, engine frame in drill press; lower, end view with covers removed showing chain drive for crankshaft.

At right: Lukenweld Inc. welded steel frame for engine of Union Pacific train.





Structural steel framing for new extension to Winton shops at Cleveland. This new structure will be used exclusively for engine testing.

Engine Corporation, engineering and sales organizations, by suitable development work and aggressive sales policy, have succeeded in adapting their units to various applications in industrial and municipal services which promise to be the source of much additional business.

In order to handle the increasing volume of business, the corporation has found it desirable to make an addition to the plant. The new building, 65 feet by 214 feet, will be of the daylight type, steel and glass, with fireproof roof. It will have a 60-ton crane and will be used for testing engines.

The Winton plant is a busy place, due to skillful planning and courageous leadership.



Welded steel frames for two 16-cylinder 1200 B.H.P. Winton diesels.

Marine Section of Fire Protection Association

In 1896 the National Fire Protection Association was founded to study the question of controlling and preventing fires. This Association has in its membership some hundred and twenty national organizations all interested in the subject.

In addition to this there are over four thousand individuals who have membership mostly as representatives of firms. There is a wide diversity of interests in this organization, such as hotel men, motion picture producers and exhibitors, railways, and all manufacturers interested in the preservation of their property

from fire loss. In 1920 a marine committee was formed in the N.F.P.A. to formulate regulations for fire prevention and these regulations are in effect today quite largely throughout the United States.

There has been increasing interest in fire prevention and protection on the part of those engaged in maritime affairs and as their problems are different from those usually encountered on shore, the Directors have decided to establish a Marine Section, which shall devote itself exclusively to maritime affairs. With this object in view an organization committee was appointed. The American Steamship Owners Association formally designated Mr. Cabaud and Mr. Harwood to be members of this committee; The National Council of American Shipbuilders designated Mr. Joseph W. Powell and Captain Roger Williams, and the National Association of Engine and Boat Manufacturers designated Mr. Alfred E. Luders. It is to be hoped that shipowners and operators, shipbuilders and repairers, yacht builders, manufacturers of marine engines, all will avail themselves of this opportunity to become members of this marine section and make it a success.

Members of the Association receive its Quarterly Magazine, a very interesting publication, profusely illustrated, a chronicle of the Association's activities, with valuable contributions of articles on fire prevention and protection, and special hazards, and compilations of fire statistics on various classes of property. They receive also a Monthly News Letter which has special information on current items of interest to those charged with the responsibility of safeguarding life and property from fire; the Proceedings of the Annual Meeting containing stenographic reports of transactions of the Association and the discussions incident to the adoption of its standards; and the Year Book with a complete list of members with addresses.

While most companies belonging to the Association take out but one membership, and designate one person who will receive all this information, many of the larger companies take out six or eight memberships as they feel they have that many men who would like to be furnished regularly with this information.

The Marine Section of the National Fire Protection Association will meet at Haddon Hall, Atlantic City, New Jersey, 10 A.M., Monday, May 14th.

Welded Steel

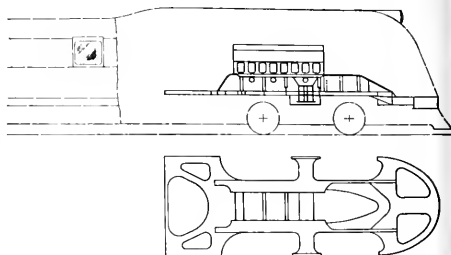
Diesel Engine Structures

Last October Pacific Marine Review Published a Paper on this Subject written by Mr. Everett Chapman, Vice-President in Charge of Research and Engineering for Lukenweld, Inc., a Division of the Lukens Steel Company. This Article is an Extension of that Paper

On the Chicago, Burlington & Quincy Railroad Company's new high speed stream-lined passenger train, the "Zephyr," the engine bed (or chassis of the motive power unit) is of welded construction, fabricated from Lukens Cromansil steel, a recently-developed, high strength steel. This application is believed to be the first instance of the use of a welded steel engine bed on a motive power unit employed in main line railway service in America.

The welded steel underframe supports a load of approximately 60,000 pounds, consisting of the 600 horsepower Winton full diesel engine and generator which power the train, and the forward half of the power car. This 30-ton dead load imposes severe impact stresses on its supporting bed under the operating conditions encountered in service. The stresses are of a fatigue

Diagrammatic elevation and plan of the train, Zephyr, showing the welded bed plate in position



nature, since they are repeated many times per mile.

Because of the infinite variety of types of load to which the structure is subjected in service, analysis of the loads is highly indeterminate. Rail joints, switches and crossovers cause vertical impact. Acceleration and deceleration result in horizontal stresses of variable extent. Movement around curves at speed



Welded "Cromansil" steel bed plate as developed by Lukenweld, Inc. for the C. B. and Q. R. R. high-speed, stream-lined train, Zephyr. This structure, 25 feet 3 1/2 inches long, 8 feet 8 inches wide, and weighing only 6060 pounds, supports a load of 60,000 pounds traveling over rails at 100 miles an hour.



A Lukenweld welded steel frame for 8 cylinders in line.

produces lateral stresses. Combinations of the various forms of stress can occur simultaneously. The requirements of service are further complicated by the necessity of minimizing weight. Naturally, the working stresses are high.

The design of the engine bed was developed by Lukenweld, Inc., division of Lukens Steel Company, Coatesville, Pa., in cooperation with the Edward G. Budd Manufacturing Company, builder of the "Zephyr," and the Railroad Company. In developing the design, particular attention was given to the elimination of rectangular elements which would involve undesirable concentrations of stress. Angles, channels and "picture-frame" correlations were avoided because they would result in severe changes in contour which, in turn, would be incipient points of failure.

It will be noted that the engine bed design utilizes extremely moderate changes in contour, not only to avoid concentrations of stress, but also to introduce a high degree of redundancy. The mutual interaction of adjacent members is an important element in the functioning of the structure as a single unit rather than as a connected assembly of individual members.

The engine bed is 25 feet 3½ inches long, 8 feet 8 inches wide, and fabricated from 5/16" plates of Lukens Cromansil steel. It has a high ratio of load-carrying capacity to weight of metal employed, since it weighs only 6,060 pounds and supports the 60,000-lb. load of engine, generator and forward half of the power car. It forms the bed of the front half of the first car of the train, and is joined at the rear to the stainless steel structure forming the balance of the car.

In addition to the engine bed, the crankcase of the Winton full diesel engine powering the train is also of welded construction, fabricated by Lukenweld, Inc., from Lukens Cromansil steel. The engine is two-cycle, 600 h.p., with eight cylinders in line, direct connected to the generator. The complete engine, without generator and auxiliaries, weighs about 22 pounds per horsepower, which low ratio of weight to horsepower is largely the result of efficient design and fabrication in welded steel construction.

San Francisco Expands Fisherman's Wharf

Fisherman's Wharf, known the world over as one of San Francisco's most picturesque beauty spots, is to be enlarged considerably to accommodate a greatly increased fishing business which this port now enjoys.

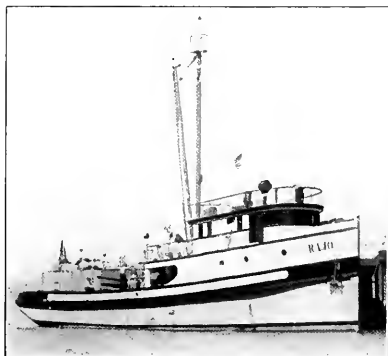
The Board of State Harbor Commissioners, at the request of Chief Wharfinger John A. Sullivan, recently ordered Chief Engineer Frank G. White to draw plans for two new finger piers, one 650 feet and the other 2,295 feet in length on the outer sides, to be constructed just east of the Hyde Street Ferry slips.

About three hundred small fishing boats are herthed at Fisherman's Lagoon throughout the year. For the seven months' period from August to February, a large fleet of purse-seine boats from Southern California operate out of this port in the fishing for sardines. The canning of sardines and the manufacture from them of fertilizer and oil is fast becoming a major industry in Northern California.

In 1932 about sixty of these boats, averaging seventy-five feet in length, and carrying a crew of some eleven men each, spent the entire season in this port. During the 1933 season just closed, this number had increased to one hundred and three boats and it is predicted that an increase of fifty per cent over this number will be seen during the season beginning next August.

The industry is of great importance not only to the Harbor but to the business interests of San Francisco as well, since all supplies for the fleet are purchased here and since a great many of the crews bring their families here from San Pedro for a seven months' stay.

The plan of the Harbor Board contemplates moving to another nearby pier lumber firms which have been operating in the location where the two new piers are to be built. The overflow during the past season has been taken care of at the adjoining Pier 45, where increased business will make it impossible of use during the coming sardine fishing period.



A typical California tuna clipper.

Shipping Code

(Continued from Page 135)

sels, three of whom shall be selected from the Members of the Industry operating American passenger and cargo vessels, and three from the representatives of the employees in the Steward's Department. Said committee shall make an investigation of the Steward's Department and shall report its findings, together with a schedule of maximum hours of employment, to the Administrator. The report shall be referred by the Administrator to the appropriate Code Authorities for such action as the Code Authorities and the Administrator may determine.

Section 10. Two Divisional Shipping Labor Boards for the conciliation of labor disputes, one to have jurisdiction of disputes with shore labor and the other with officers and unlicensed members of crews, shall be created for each division or subdivision. Each Board shall be comprised of four members, two to represent the class of labor of whose disputes it has jurisdiction, appointed by the Administrator, with the advice of the Labor Advisory Board, and two to represent the shipping industry appointed by the Code Authority of the Division or subdivision concerned, in such manner as the Authority may determine. With approval of the Administrator one Board may act for more than one division or subdivision or more than one port. Disputes arising with any officers or seamen shipped for a round voyage shall be subject only to the jurisdiction of the Divisional Board functioning at the port of engagement or discharge. An appeal from the decision of a Divisional Board may be taken to the National Shipping Labor Board unless it refuses to hear the appeal. If agreed by the parties to a controversy the Divisional Labor Board having jurisdiction over the class of labor with which the dispute is concerned may act as a Board of Arbitration with power to select an umpire to sit for the arbitration, and in such case its decision shall be final and binding on the parties to the arbitration.

Section 11. A National Shipping Labor Board shall be appointed by the President for the conciliation of labor disputes. The Board shall be comprised of six members, two to be appointed from ship-owning Members of the Industry, two from employees or representatives of employees of the Shipping Industry engaged in shore labor, one from unlicensed members of crews or their representatives, and one from licensed members of crews or their representatives. Four members of the Board shall sit as a committee to hear and conciliate labor disputes which, with its consent, shall be appealed to the Board from a Divisional Labor Board. The four members so sitting shall be the two members appointed from among the shipowning Members of the Industry, and the other two shall be the members appointed from the class of labor (shore or sea labor) with respect to which the particular dispute under consideration arises. The Board shall meet at such time and places as it may determine. If agreed by the parties to a controversy, the committee provided for above may act as a Board of Arbitration with power to select an umpire to sit for the arbitration, and in such case its decision shall be final and binding on the parties to the

arbitration. The Board shall exercise its good office to promote harmonious and effective cooperation between employers and employees. The members of the Board shall be paid on a per diem basis for the above actual services rendered, with reasonable traveling expenses, to be approved and paid through the Administrator as part of the cost of administering this Code.

Section 12. The National Shipping Labor Board, in cooperation with the Code Authorities of the various divisions and subdivisions and the United States Department of Labor, shall undertake a study of the decasualization of longshore labor and, so far as practicable of application, formulate rules and regulations therefor and present the same to the longshoremen and to the respective divisions and subdivisions whose members are employers of the labor concerned, with a view to making the same effective by appropriate amendments of or supplements to the Division and Subdivision Codes.

Section 13. The provisions of this Article shall not affect the internal discipline of foreign flag vessels, or the regulation of rights and duties of officers and crews of foreign flag vessels towards their vessels or among themselves, or their relations with their owners under contracts made without the United States.

● Article VI—Unfair Practices

Section 1. The following practices are unfair methods of competition and constitute a violation of this Code, and may be supplemented in the Division and Subdivision Codes:

(a) Giving directly or indirectly or offering to give anything of value for the purpose of influencing or rewarding the action of any shipper, consignee, or broker, or prospective shipper or consignee, or to any officer, employee, agent, or representative thereof. These provisions shall not be construed to prohibit free and general distribution of articles commonly used for advertising, except so far as such articles are actually used for influencing business as above defined.

(b) Giving or allowing, directly or indirectly, by any device, to any shipper, consignee, or broker, any commissions, bonuses, rebates, refunds, or credits of any part of the freight money or other compensation received, or contracted to be paid, for any transportation service originating in or destined to continental United States, rendered by any Member of the Industry, when not extended to all shippers, consignees, or brokers under like terms and conditions.

(c) Disseminating, publishing, or circulating any false or misleading information relative to any Member of the Industry, or to the credit standing or ability of any member to perform any service, or to the conditions of employment among the employees of any member.

(d) Inducing, or attempting to induce, by any means, any party to a contract with a Member of the Industry to violate such contract.

(e) Aiding or abetting any person, firm, association, or corporation in any unfair methods of competition forbidden by this or any Division or Subdivision Code.

(f) Stating in any dock receipt or bill of lading a date other than the actual date of shipment or receipt for shipment, as the case may be.

(g) Knowingly to use or permit the use of any false

classification, false weights and measures, or false report of weight or measurement.

(h) Rendering to any shipper or consignee any service outside or beyond that reasonably called for in the contract of affreightment or tariff, unless approved by the Members of a Division, or a specified compensation for such service shall be paid by the Shipper or consignee.

(i) Preventing or attempting to prevent, directly or indirectly, through the medium of any agreement, conference, association, understanding, or otherwise, any Member of the Industry from extending service to any port or terminals.

(j) Paying freight brokerage or passenger commission fees on any other than a basis which may be prescribed in a Division or Subdivision Code.

(k) Giving any contract to load and/or discharge any cargo on representation that the cargo will not be given the carrier unless the broker or shipper or consignee is permitted to appoint the stevedore, unless expressly authorized in any Division or Subdivision Code, provided that this shall not apply to charter party commitments.

Article VII—Stabilization and Regulations of Rates, Fares, and Charges

Section 1. Each Division or Subdivision Code may prescribe rules and regulations to be complied with by Members of the Industry, and rates, fares, and charges, which shall be the minimum rates, fares, and charges, or less than which may be charged by Members of the Industry.

Section 2. Any minimum rates, fares, and charges contained in or prescribed under any Division or Subdivision Code, or amendments thereof or supplements hereto, shall be printed and kept open to public inspection by the Members of the Industry subject to such Code. Except as otherwise required by law, the governing Division or Subdivision Code Authority may, in an emergency, authorize a temporary reduction of any minimum rate, fare, or charge without previous notice to the Administrator, but such reduction shall be immediately reported to the Administrator. Before any other change in any minimum rate, fare, or charge contained in or prescribed under any Division or Subdivision Code is made, thirty days' written or telegraphic notice thereof shall be given to the Administrator, who, if substantial protest against the proposed change is made, may order a public hearing thereon at such time and place and on such notice as the Administrator may determine; otherwise the change shall become effective on the expiration of said thirty days' notice, unless expressly disapproved by the Administrator. The time of notice may be reduced or waived, in the discretion of the Administrator.

Section 3. Sworn complaints from any source, charging that any rate, fare or charge, rule, regulation, or practice, is unfair or unreasonable, shall be referred to the Administration representatives for adjustment as provided in Article VIII hereof. If any complaint is not satisfactorily adjusted locally as provided for in Article VIII hereof, the Administrator shall have, and is hereby given, authority to enter upon a hearing of such charge, after such notice and under such rules and regulations as he may prescribe, and if he finds the complaint sustained he may suspend such rate, fare or

charge, rule, regulation, or practice.

Article VIII—Administration Representatives

Section 1. The Administrator may appoint such number of Administration Representatives as he may in his discretion deem necessary so that there may be available an Administration Representative to sit without vote on each Division and Subdivision Code Authority, who may follow activities of the Code Authorities and advise the Administrator in connection with all matters requiring the approval of the Administration, and may attend meetings of the Code Authorities when such matters or any other matters affecting the welfare of the industry are acted upon.

Section 2. The Administrator shall appoint an Administration Representative to be located permanently at each of the following headquarters or such other ports as the Administrator may decide: New York, N.Y.; New Orleans, La.; San Francisco, Calif.; Chicago, Ill.

Section 3. In addition to the duties described in Section 1 above, it shall be the duty of the Administration Representatives appointed pursuant to the provisions of Section 2 above to receive complaints from any source, charging that any rate, fare or charge, rule, regulation, or practice, is unfair or unreasonable, and to assist in the adjustment of such complaints, if possible, by the appropriate Code Authorities of the Divisions or Subdivisions. In the event such complaints are not satisfactorily adjusted, the Administration Representative shall forward copies of the complaints to the Administrator, together with a full report of the action of the Division or Subdivision Code Authority thereon.

Article IX—Coordination

In the administration of this Code and any Division or Subdivision Code, the Administrator shall utilize the assistance of the United States Shipping Board Bureau, Department of Commerce and/or Interstate Commerce Commission to the fullest extent deemed advisable by him, through hearings, investigations, or otherwise, and recommendations based thereon certified to the Administrator, in respect of rates, fares, charges, classification, rules, regulations, practices, and other appropriate matters, to the end that various branches of executive authority may be brought into effective coordination.

Article X—Monopolies

Section 1. Neither this Code nor any Division or Subdivision Code shall be interpreted or applied so as to promote or permit monopolies or monopolistic practices or to eliminate or oppress small enterprises or discriminate against them.

Article XI—General Shipping Council

Section 1. A General Shipping Council, comprised of three members, shall be appointed by the President from among representatives of Members of the Industry. They shall hold office at the will of the President.

Section 2. Any Member of the Council may sit with and participate in (without vote) the meetings and deliberations of the Members of the Division and Subdivisions and their respective Code Authorities. It shall be the general duty of the Council to observe the operation of the codes and to act in an advisory capacity to the industry and to the Administrator.

(Please turn to Page 144)

American Clipper Noonday

On April 11, 1934, while fishing outside the heads at the entrance to San Francisco Bay, the fishing trawler, Junta, of the Consolidated Fisheries fleet, Skipper Giovanni Tarantino picked up a ship's bell, which on cleaning proved to be that of the ship Noonday, sunk off the Farallons, January 1, 1863. The finding of this relic has aroused much local and some nationwide interest, and we have received a number of inquiries about this ship, so here is her history, as compiled from the best authorities and notably from Howe and Matthews "American Clipper Ships".

Noonday was built at the Fernald and Pettigrew yard, Portsmouth, New Hampshire, for Henry Hastings of Boston in 1855. A medium clipper model, she measured 200 feet over all length of hull, 38 feet 6 inches beam, and 23 ft. 6 ins. depth, with a capacity of 1189 tons old measurement. Her deadweight carrying capacity was 1500 short tons, but she had a weight and measurement capacity of about 2100 tons in the California trade. Only her mainmast carried a skysail.

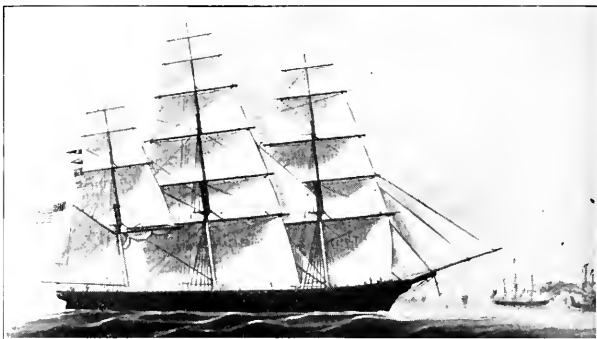
She was a good steady ship, but made no records. In all she had five voyages from Boston to San Francisco including her last, which was not completed. Her times on these passages were: 1856, arrived March 4, 139 days out; 1857, arrived May 13, 117 days out; 1860, arrived February 10, 126 days out; and 1861, arrived August 26, 146 days out.

After her first two arrivals at San Francisco, she returned to Boston, via Calcutta. During August, 1857, on the second of these return voyages, she struck a rock near the Banda Islands, and was forced to put into Batavia with a sizeable hole stove in her bottom.

On her return voyage, in 1860, she picked up guano at Callao, and made the passage thence to Hampton Roads in 85 days. In 1861, with a full cargo of wheat and other California products, she made London from San Francisco in 117 days.

On January 1, 1863, Noonday was approaching the Golden Gate, with 2012 weight and measurement tons of general merchandise in her holds. The sky was clear, the sea smooth but with a long slow swell. The ship was under all sail with main skysail and top gallant studding sails set, and making nine to ten knots speed. About eight miles west of the North Farallon, she struck something, but with no great shock, and glided clear. The charts showed no rock, but it was found that her bottom has been stove in and she immediately started to fill and sink.

Captain Henry and the crew had just time to get the boats away with a few of their personal possessions and the ship's papers. They were picked up promptly by the pilot boat Relief, which had been standing by some two miles distant waiting to take the ship in.



The American Clipper Midnight, built at same yard as Noonday, is a smaller ship with practically the same profile.

The rock, which caused this wreck, is now known as Noonday rock. It is covered with 18 feet of water, and although its existence was known to pilots, it had not been charted before the wreck occurred.

This good old clipper, with her cargo, was estimated to be worth approximately \$450,000.00. She sank in 40 fathoms of water, practically within sight of the haven toward which she had been winging her way for 139 days. Now that her bell has been fished up after all these years, may we not accord it an honored place among the treasures of the Marine Department of the San Francisco Chamber of Commerce?

Shipping Code

(Continued from Page 143)

● Article XII—Treaties

Section 1. Provisions of this Code or any Division or Subdivision Code shall not violate any treaty.

● Article XIII—Cancellation—Modification

Section 1. This Code and all the provisions thereof are expressly made subject to the right of the President, in accordance with the provisions of Clause 10 (b) of the Act, from time to time to cancel or modify any order, approval, license, rule, or regulation issued under Title I of said Act, and specifically to the right of the President to cancel or modify his approval of this Code or any Division or Subdivision Code or any conditions imposed by him, upon his approval thereof. In submitting this Code, or in filing written assent to this Code, the subscribing parties do not thereby consent to any modification thereof nor waive any constitutional rights.

● Article XIV—Effective Date

Section 1. This Code shall become and be effective on the 15th day after approval by the President and for one year thereafter.



Marine Equipment

CONTRA PROPELLERS ~ NON-SLIP FLOORS
CONDENSER TUBE FASTENINGS ~ GAS LIFT TRUCKS

Noted A-H Service

Improved with Contra Propellers

Four years ago the American-Hawaiian Steamship Company began a practical experiment with the Contra Propeller by installing one on the Steamship *Pennsylvanian*. This job has been in satisfactory service about a year when the firm took over the Williams line, and in overhauling one of these ships, renamed the *Arizonan*, a Contra Propeller was fitted. Again about a year thereafter the *S.S. Golden Sun*, operated to the Orient under American-Hawaiian management, was fitted with this fuel-saving, speed-increasing device.

Careful records have been kept of the performance of these three ships for long periods before and after installation of the Contra Propeller, and the actual results were so satisfactory that another installation was made recently on the *Kentuckian*; and during the past month a contract was made with the Moore Dry Dock Company for the fitting of all the rest of the single screw vessels in the fleet, or for 20 ships, so that when these installations have been finished, American-Hawaiian Steamship Company will have in operation, 24 vessels, each fitted with a Contra Propeller.

The records of the 3 first vessels of the fleet to be fitted with this device show an improvement in performance that should be very interesting to ship operators. They are given here without further comment as averaged from the engineers' logs of the ships.

S.S. Pennsylvanian, averages for three years prior to installation:
Speed11.63 knots
Displacement9045 tons
Fuel consumed, 210 barrels per day
Adjusted fuel, 229 barrels per day



American-Hawaiian intercoastal cargo liner *Arizonan* in the Panama Canal.

S.S. Pennsylvanian, averages for four years after installation:

Speed11.81 knots
Displacement9642 tons
Fuel consumed, 187 barrels per day
Gain in fuel economy due to
Contra Propeller.....18 per cent

S.S. Arizonan, averages for seven voyages prior to installation:

Speed10.44 knots
Displacement12425 tons
Fuel consumed, 200 barrels per day
Adjusted fuel consumed
.....242 barrels per day

S.S. Arizonan, averages for three years after installation:

Speed11.62 knots
Displacement10225 tons
Fuel consumed, 200 barrels per day
Gain in fuel economy due to
Contra Propeller.....17 per cent

S. S. Golden Sun, averages for eighteen months before installation:

Speed9.46 knots
Displacement12675 tons
Fuel consumed, 219 barrels per day
Adjusted fuel consumed
.....222 barrels per day

S.S. Golden Sun, averages for three years after installation:

Speed9.79 knots
Displacement11119 tons
Fuel consumed, 187 barrels per day
Gain in economy due to Contra
Propeller15 per cent

The item, "adjusted fuel," in each case is the actual fuel consumed be-

fore installation adjusted to the average speed and displacement of the records after installation.

These records reveal a number of operating advantages gained by the equipment of a fleet of steamers with Contra Propellers:

First—Assuming that there is a fixed schedule with no desire to increase speed, it is evident that the Contra Propeller would give a net gain of from 15 to 20 per cent in fuel economy.

Second—Schedules can be kept with better regularity regardless of weather because of the spare power gained.

Third—Maintenance of machinery should be lowered since speed can be maintained with less strain on engines and boilers.

At any rate, the operating management of the American-Hawaiian Steamship Company (recognized as among the most capable in the marine world today) have decided that the installation of this device is a matter of operating economy.

The Moore Dry Dock Company of San Francisco and Oakland will make all of these installations. Contra Propeller design and engineering is handled in the United States by the Theo Goldschmidt Corporation of New York. The Bethlehem Shipbuilding Corporation holds the manufacturing rights and make all the castings.

New Non-Slip Treads and Floors for Ship's Use

Most naval architects and engineers are familiar with the many improvements which have been made in the last few years in the mechanical equipment for vessels—new propulsion methods, new electrical apparatus and the like. There are other lines, however, in which equal progress has been made but about which little information has appeared in print so that few are familiar with the improvements. Tiles and terrazzo, for example, used for many areas on shipboard, have felt the influence of modern scientific research, so that today the wet floor slipping hazard, long a serious drawback with these products, has been definitely conquered.

Alundum abrasive, a material long famous in grinding wheels, is now made into tiles and into an aggregate for use in terrazzo. It provides walkways that are ideal for use wherever there would be a slipping hazard with ordinary tiles or terrazzo.

Both of these floorings are popular for many areas on shipboard, and not only on the large passenger liners but also on strictly cargo vessels such as freighters, tankers, and the like. The places where tiles and terrazzo are most commonly employed—such as galleys, lavator-

ies, washrooms—are areas where water and other liquids are likely to be spilled. Ordinary tiles and terrazzo are slippery when wet, and on a rolling, pitching vessel the hazard is even more serious than on land.

Because these abrasive tiles and abrasive aggregates for terrazzo so completely overcome the wet floor slipping hazard they are becoming more and more used on boats, as on shore. The accompanying illustrations show a number of typical illustrations. In galleys the larger units of tile or terrazzo are most commonly used. Chefs and other members of the culinary staff like these products, not only because of their non-slip effectiveness when wet, but also because they make a floor that is quieter and more comfortable to the feet than ordinary tile or terrazzo.

In washrooms, lavatories and showers the small mosaic sizes of abrasive tile are most commonly used, although terrazzo is sometimes employed in these areas. Passengers like the sense of security provided in showers and lavatories by these non-slip floors.

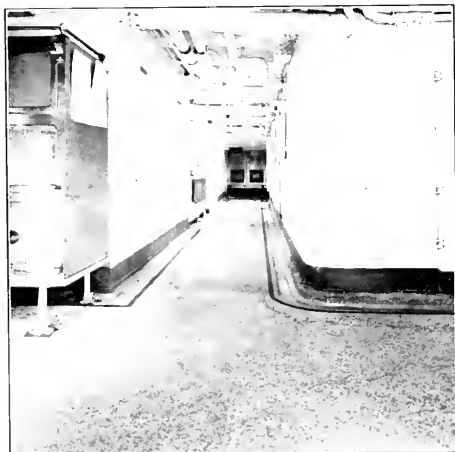
In the manufacture of the tiles, aluminum oxide (Alundum) abrasive is mixed with special bonding clays and suitable coloring agents, is pressed in moulds to standard sizes and then vitrified in ceramic kilns. The tiles have a structure that makes them non-glazing and thus they provide permanent protection against slipping accidents. Also the hardness and toughness of

the grains of Alundum abrasive provide a durability that will withstand years and years of heaviest foot traffic. In spite of their high percentage of abrasive (35 per cent or over) the tiles are not excessively rough and porous. The abrasive used is fine in size to give a dense close-grained structure.

Abrasive tiles made in the above manner, however, should not be confused with ordinary vitrified tiles which contain simply a sprinkling of abrasive grain. In the latter tile these scattered points of abrasive soon wear off or glaze over under the action of foot traffic, so that the non-slip protection is more or less temporary.

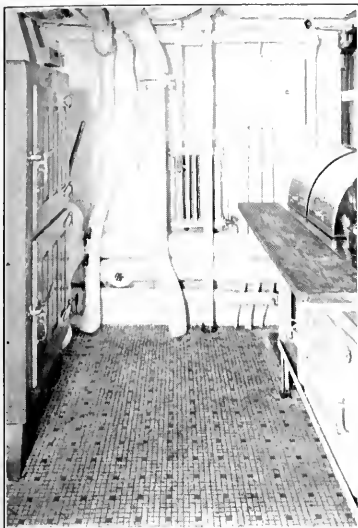
The abrasive aggregate for use in terrazzo is identical in composition to the abrasive tile and is manufactured in the same general manner except that the mixture of Alundum abrasive and bond is moulded in the form of blocks, and after vitrifying the blocks are crushed and screened into standard aggregate sizes. Both the tiles and the aggregates are made in a variety of colors so that an unlimited number of decorative effects are possible.

There are many stairways aboard ship—in the passenger sections as well as the crew's quarters—where both the non-slip and wear resisting features of aluminum oxide (Alundum) abrasive can be employed to advantage and a new tread has just been developed which makes it possible to utiliz-



Left: Terrazzo flooring (made up with Alundum abrasive aggregate) in passageways. Right: Alundum abrasive tiles in ship's galley





Small size Alundum abrasive tiles of contrasting colors can be laid in various geometric patterns and form a very pleasing and decorative floor that is also absolutely non-slip.

these features. It is composed of the same abrasive aggregate used for terrazzo but securely moulded in a reinforced base of hard, tough rubber. The tread surface is highly non-slip, even at the very nosing edge. Because the aggregate is non-glazing the non-slip effectiveness of the tread is permanent—it will not wear smooth.

The tread is especially suitable for use on stairways traveled by women passengers because its flat, level surface has nothing to catch heels or cause a tripping hazard.

The tread is easily installed on either new or old stairways of wood or steel construction. Because it is not affected by weather conditions and its non-slip effectiveness is not lessened by water, it can be used for exposed stairways between decks as well as for interior stairways.

A New Fastening for Condenser Tubes

Many engineers, when faced with the problem of internal repair or inspection of surface condenser, cooler and heater tubes, have wished for a method of tube fastening other than mechanical rolling of tubes into tube sheets, which has been a method of construction used by manufacturers for a number of

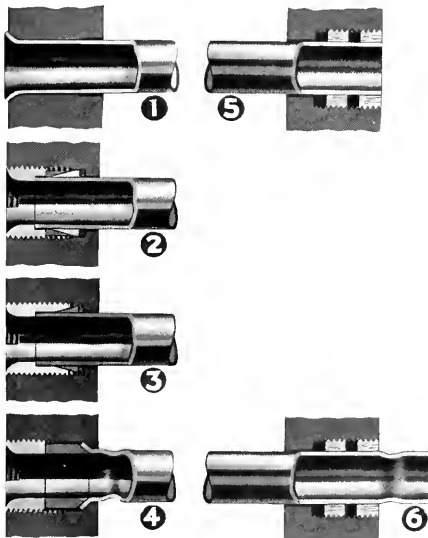
years.

In removing a tube that has been rolled into the tube sheet, it is necessary to collapse its wall inside of the tube sheet with a cold chisel before drifting through the packing at the other end and removing from the end which has been rolled. This

ruins the tube for use in the condenser and, in order to be used at all, it must be cut off and used in a condenser having a shorter tube length.

A number of units located in regions where sandy cooling water is encountered develop trouble at the inlet end of the tube from erosion and, in many cases, tubes must be discarded and replaced long before their average life has been reached. Trouble is also experienced due to aeration attack of the tube material at the inlet end, due to entrained air in the cooling water coming over from the piping system and the circulating pumps.

The rolling of tubes at each end into both tube sheets presents a problem of tube expansion or breathing under changing temperatures which must be taken care of, either by tubes bowing at random in the steam space or by the use of one floating tube sheet. Experiments have proved that when tubes are rolled into both tube sheets, stresses are imprisoned in the tube, whether the rolling is done by machine or by hand. In other words, when each tube is rolled, each end is twisted in an opposite direction as it is rolled, and it retains those stresses, imprisoning them in the tube. Then there is always danger of over-rolling, further weakening the grain structure of the tube ma-



Sectional elevations showing various methods of fastening the ends of condenser tubes in the tube sheets both at inlet and outlet ends of tube.

terial. All these imprisoned stresses are acted upon further when the unit is in actual service, resulting in a progressive weakening and, finally, total failure of the tube which, in many cases, is manifested in the breaking off of the tube in the steam space on the inside face of the tube sheets.

The Crane Packing Company has developed two unique methods of tube fastening at the inlet end of tubes, which have none of the disadvantages of rolling and have the advantage of firmly fixing the tube, allowing expansion to take place entirely towards the outlet tube sheet.

The first method consists of a gasket inserted into the bottom of the drilling and then a soft Admiralty metal cone is slipped over the tube against the gasket. Next a hard Admiralty metal seat is slipped into the cone. Against the seat is screwed a streamline ferrule, which is so designed as to come flush with the tube sheet. An alternate method consists of the gasket, cone and a special ferrule, which is so beveled that it replaces the seat and the ferrule described above. The construction of these two methods is shown by Figures 2 and 3.

The ferrule applies a pressure against the seat, compressing the soft cone radially against the diameter of the tube, and gives a perfect mechanical seal without even measurable deformation of an 18-gauge tube.

By the use of this method in combination with John Crane metallic condenser packing for the outlet end, as shown in Figure 5, it is possible for the operator to remove tubes from the condenser simply by removing the ferrule, drifting the tube through the outlet packing and removing the tube from the inlet end. The fitting parts are interchangeable and may be re-used and, by careful drifting of the tube through the packing at the outlet end, it is possible to slide the tube back and caulk the packing home so that the unit can again be put on the line without leakage.

In cases where erosion, aeration or tube metal thinning at the inlet end is experienced from any cause whatsoever, it is possible with this fitting to remove the tube from the condenser, turn it end for end and thereby make possible twice the life of a tube which was originally rolled at one end.

Figure 4 shows how many tubes have become necked or damaged over a period of time by applying through screwed ferrules pressure to an inferior fibrous packing.

Figure 6 shows how these same tubes may be re-fitted by a second John Crane method so as to move the damaged portion of the tube towards the outlet tube sheet so that John Crane metallic packing may be applied with perfect confidence.

It should be noted that this method provides a perfect metal to metal joint at the inlet tube sheet and that tubes are fixed at one end, allowing all the expansion to take place towards the outlet tube sheet. Tubes are removable for inspection and may be replaced through either end of the condenser.

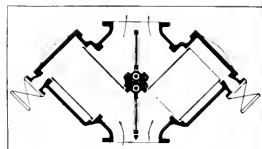
By the use of this method, it is possible to save many thousands of dollars of tubes in present installations, which would otherwise have to be thrown away. This saving can be made with a very small proportion of the replacement cost of the tubes and operation may be continued without leakage so long as the average tube wall thickness is enough so that "outage" from failure of the tube material itself does not warrant replacement.

Special tools have been designed for use in installing rapidly by either of the two above methods. Parts should be of the same materials as the tubes to prevent electrolytic action. The manufacturer is prepared to furnish parts in the copper and copper-nickel alloys.

New Water Strainer is Self Cleaning

The Phillips Strainer embodies a backwashing feature by means of which the strainer is cleaned while in operation without removing the strainer baskets. This strainer, which is manufactured by Freyn Engineering Company, 310 South Michigan Avenue, Chicago, Illinois, comprises two baskets placed at 90 degree angles to each other, and through which the flow of water is controlled by two swinging gate valves. The strainer basket is a cylinder, perforated to give the desired screen opening, the top and bottom of the basket being open.

Under normal operation both gate valves are open. Water enters at the bottom of the strainer and divides, half passing through each



Sectional drawing of Phillips strainer.

strainer basket. To clean one of the baskets the bottom gate valve is closed, cutting off the inlet water to that basket. The by-pass valve on that basket is then opened, with the result that clean water from the discharge of the other strainer basket is forced through the first mentioned strainer basket in the reverse direction, flushing the dirt out of the baskets and through the by-pass valve. The by-pass valve is then closed and the gate opened.

To remove a strainer basket for inspection, both gate valves are closed, whereupon the basket may be removed the same as with the conventional type of twin basket strainer.

The frequency of backwashing is determined by the amount of foreign matter in the water being strained. At an installation in a large generating plant in Chicago, on the discharge of a 4000 g.p.m. service water pump, pumping from Lake Michigan, it was found necessary to backwash the strainer only once every eight hours. Inspection made at monthly intervals disclosed the strainer baskets to be perfectly clean.

The swinging gate valves consist of a bronze disc, which is held against the bronze seat by the line pressure of the water. The disc is carried on a stainless steel shaft which is held in live rubber bushings, with the result that the shaft is free to shift its center to allow the swinging gate to seat perfectly.

The strainer baskets are made of brass with bronze rings at top and bottom. The baskets are provided with 1/8 in. to 3/8 in. or larger perforations as desired. The straining area in the baskets is considerably in excess of the area of the inlet. The strainer housing is made of cast iron for water pressures below 125 lb. per sq. in., and in cast steel up to pressures of 200 lb. per sq. in.

The Phillips Strainer is adapted for cleaning the water used for general service requirements on board ship.

Speeding Up Cargo Handling with Gas Lift-Trucks

Steamships earn when at sea, not in berth. Any speeding up of cargo unloading and loading time means real profits. If these mechanical giants could land the cargo with one hand then pick up another and move on their way, footwork to the next port would be practically the only important consideration.

Steamship and lighterage companies are beginning to realize that a coordination of efforts effect service economies that prove profitable to both.

Marine Terminals Corp. stevedores for Panama Pacific Line on the Pacific Coast handles thousands of tons of California products, much of which cargo is barged to their receiving pier by the Bay Cities Transportation Co. from the various originating terminals.

Until recently much unnecessary rehandling was involved in these transfers, not only interrupting a free flow of the cargo, but frequently increasing damage and added an unnecessary cost.

Recently through an unusually advantageous cooperative arrangement, the Bay Cities Transportation Co. segregate and load this cargo so that it may be moved intact from the originating terminals to the Panama Pacific Terminals and also be loaded directly into the steamers without rehandling.

The usual loss of time and confu-



The new Elwell-Parker 3-ton gas lift-truck in use on stevedore operations by Marine Terminals at San Francisco.

sion involved in making up sling loads is entirely eliminated through this cooperation, and a considerable speeding up is effected. This is of especial advantage when overtime is worked, as in loading cargo that is received during the last day or two before sailing, and much cargo is what may be called "last minute cargo."

The barging operation, which is a very important factor in completing this link in cargo movement, requires building capacity loads of three tons on skids at the start, practically the same quantity of goods is placed on each of two cargo boards of the same area as the top of the skid.

Each board takes half of the skid load, one board load is placed on top of the other while the two are carried on the skid. However, the lower load board is dropped onto

the skid before it is loaded, saving one mechanical operation. The boards are so constructed and the lading is so stowed that the load pressure of the upper unit load is equally distributed over the load beneath—and the two units carry safely.

The double-decked skid loads are now picked up by the fast gas power Bay Cities Transportation Company's Elwell Parker dock type lift truck and speedily placed in the barges for quick delivery across the Bay.

Here they are as readily picked up and whisked onto the dock by the same gas powered lift truck, which at certain tides must deliver up a fifteen percent ramp. The barge after quick unloading is released for immediate turn around.

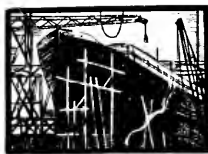
The double-decked unit loads are accumulated at the steamship pier. As soon as the steamship is ready to receive these double-decked loads on skids are wheeled out with "the agile self-loading gas" lift trucks and dropped beneath the ship's tackle, where the top board load and then the lower unit load is swung on board, leaving the empty skid on the dock.

The empty cargo boards, as fast as their loads are stowed, are returned and accumulated on the skids alongside of the steamship and delivered to barge unloading point and carried by the barge back to the original land-side terminal for a repeat operation.

The idea of stowing the loaded board in the holds of some steamships for coastwise delivery is gaining consideration, and this will, if proved possible, result in even greater saving of time at port.



The new Elwell-Parker 3-ton gas lift-truck speeds up cargo handling by spotting double deck loads.



American Shipbuilding

TWO CONTRACTS AWARDED PUGET SOUND YARDS

Puget Sound shipyards have been awarded two boat building contracts by the federal government. The Winslow Marine Railway & Shipbuilding Company, Seattle, has secured contract for construction of the Biological Survey patrol boat Brown Bear, and the Schertzer Boat & Machine Works, Lake Union, has the contract for the Grizzly Bear, to be built for the same service.

The two vessels will represent an expenditure of about \$132,000. Engines for both vessels are also being built in Seattle by the Washington Iron Works.

BIDS EXPECTED FOR GULF PACIFIC LINER

Bids for the new Gulf Pacific main line passenger and cargo vessel, previously reported to be taken by Swayne & Hoyt, San Francisco, at an unspecified date in December, and postponed, are now reported to be received on or about May 1. According to mail contract specifications, the vessel will be approximately 400'x59'x38', of about 6,500 tons, having accommodations for a limited number of passengers.

SUN WILL BUILD BARGE FOR TEXAS COMPANY

The Sun Shipbuilding and Dry Dock Co., Chester, Pa., has been awarded contract for the construction of a non-propelled steel oil barge for the Texas Company, New York. The vessel, designed by Geo. B. Drake, New York naval archi-

tect, will be 208'x8'x12', built on the Isherwood bracketless system, with double riveting in the oil space. It will contain five pairs of tanks, and two Wilson-Snyder duplex pumps, to be run by steam from shore boilers, or towboats will form the nucleus of the pumping system for safely handling oils and gasoline of various grades. It will be fully equipped with all modern and essential devices and so designed as to permit of operation in canals, on the Great Lakes or in coastal trade.

MIDLAND MAKES LOW BID ON STEEL PONTON

The Midland Barge Co., Midland, Pa., was low bidder recently for construction of a steel suction pontoon, 65'x16'x3'6", scheduled for delivery at Keokuk, Ia., within two and one-half months. Bids were taken by the U.S. Engineer at Rock Island, Ill.

UNITED DRY DOCKS AWARDED ALL-WELDED OIL BARGE FOR KOEHLER

Contract has been awarded the United Dry Docks, Inc., New York, for the construction of a non-propelled, all steel oil barge for the F. D. Koehler Company, Staten Island, N.Y. The vessel will be 100'x33'x9', with a capacity of 467 tons, having 18 compartments and five rotary discharge pumps.

NEWPORT NEWS BUILDS TUG FOR OWN USE

The Newport News Shipbuilding and Dry Dock Co. have begun the

building of a tug for yard use at its own plant. The new vessel, which will take the place of the tug Ideal, will be approximately 110'x28'x14'6".

DRAVO LOW BIDDER ON SAN DIEGO NAVAL DRY DOCK

The Dravo Contracting Co., Pittsburgh, Pa., was low bidder on March 8, and was awarded contract by the Bureau of Yards and Docks, Washington, D.C., for the construction of a steel floating dry dock 393'x60'x33' for the naval base at San Diego, Calif. The dock will have a typical ship's bow, with a hinged gate at the stern. It will be capable of being towed at sea to act as a base and plant for destroyers, tugs, submarines and mine-sweepers. Additional items, total bids for which are given herewith, include anchor handling equipment, bow capstan, steering gear, flying bridge and operating mechanism, telephone system, water-level indicator system, diesel generator set, motor generator set, sewer lines and ejectors, air compressors and piping, fire pumps and fire system, side capstans, and blowers and ducts for forced-air circulation. Bids as follows (A, work complete; B, total additional items; C, grand total):

Dravo Contracting Co.

| | |
|---------|-----------|
| A | \$278,200 |
| B | 74,470 |
| C | 352,680 |

Pusey & Jones Corp., Wilmington, Del.

| | |
|---------|-----------|
| A | \$359,000 |
| B | 78,570 |
| C | 437,570 |

Treadwell Constn. Co., Midland, Pa.

| | |
|---------|-----------|
| A | \$364,000 |
| B | 79,954 |
| C | 443,954 |

Maryland D.D. Co., Baltimore, Md.

| | |
|---------|-----------|
| A | \$365,704 |
| B | 89,367 |
| C | 455,071 |

Wallace Bridge & Steel, Seattle.

| | |
|---------|-----------|
| A | \$386,000 |
| B | 82,900 |
| C | 468,900 |

N.Y. Shipbldg. Co., Camden, N. J.

(Please turn to Page 154)



U.S.S. Farragut, Destroyer 348, afloat after launching at the Bethlehem Shipbuilding Corporation's Fore River Plant, Quincy, Mass., on March 15.

Progress of Construction

The following Report Covers the Shipbuilding Work in Progress at the Leading Shipyards of the United States as of April 1, 1934

Pacific Coast

BERG SHIPBUILDING CO.

foot of 26th Ave., N. W.
Seattle, Wash.

NEW CONSTRUCTION: Light-house tender Hemlock for U.S. Bureau of Lighthouses to be used in Alaska service; a twin screw, steel steamer 174' 6" in length; TE engines, 1000 H.P., WT boilers. Keel was laid April 27, 1933. Launched Jan. 20, 1934. Delivery, no date set.

BETHLEHEM SHIPBUILDING CORPORATION, LTD.

(Union Plant)

San Francisco

DRYDOCK, PAINT, MISCELLANEOUS: S.S. Antigua, S.S. Manulani, U.S.S. Pennsylvania, S.S. Hegira, S.S. Pres. Lincoln, S.S. Acme, S.S. Paulsboro, S.S. Azumasan Maru, S.S. Talamanca, U.S.S. New York, S.S. Paul Shoup, S.S. Los Angeles, S.S. Chiriqui, S.S. Pres. Garfield, Barge Martinez, S.S. Forbes Hauptman, S.S. Adm. Seabree, U.S.S. California, S.S. Santa Rosa, Shell Oil Barge No. 6, S.S. Pres. Wilson, Tug W. B. Storey, U.S. Dredge McKenzie, S.S. K. R. Kingsbury, S.S. Lake Galewood, U.S.L. H.T. Lupine, S.S. West Ira, S.S. Pres. Polk, S.S. Maui, S.S. Manoa, S.S. Admiral Peoples, S.S. H. F. Alexander.

GENERAL ENGINEERING AND DRYDOCK CO.

Foot of Fifth Avenue
Oakland, Calif.

NEW CONSTRUCTION:

Hull No. 27, wooden deck barge; L.B.P. 80'; beam 26'; depth 6'; keel laid, March 12, 1934; launched and delivered, April 17, 1934. Hull No. 28, same as above; launched and delivered, April 19, 1934.

DRYDOCK, PAINT, MISCELLANEOUS: Launch McDowell, S.S. Davenport, S.S. Coalunga, U.S.C.G.C. Golden Gate, S.S. Lumberman, U.S.H.B. El Aguador, Barge Iroquois, S.S. Delta Queen, Gas Launch Louis, S.S. Daisy, S.S. General M. H. Sherman, S.S. Golden Rod, S.S. Daisy, Alaska Packers Barge, No. 1 Santa Fe Barge.

ENGINE AND MACHINERY REPAIRS: U.S.C.G.C. Morris, S.S. Charlie Watson.

LAKE UNION DRYDOCK & MACHINE WORKS

Seattle, Wash.

NEW CONSTRUCTION: Hull No. 102, Atlanta, U.S. Coast Guard patrol boat; keel laid March 23, 1934; estimated launching, May 15, 1934; estimated delivery, Sept. 20, 1934.

Hull No. 103, Ariadne, U.S. Coast Guard patrol boat; keel laid March 23, 1934, estimated launching, June 1, 1934; estimated delivery, October, 1934.

Hull No. 104, Cyane, U.S. Coast Guard patrol boat; estimated keel laying, late May, 1934; estimated launching, June 15, 1934; estimated delivery, Nov. 1, 1934.

THE LOS ANGELES SHIPBUILDING & DRY DOCK CO.

Los Angeles Harbor
San Pedro, Calif.

DRYDOCK, PAINT, MISCELLANEOUS: S.S. La Brea, S.S. Tamiahua, S.S. Topila, S.S. Montebello, Tug Milton S. Patrick, S.S. Catalina, S.S. Pasadena.

ENGINE AND MACHINERY REPAIRS: S.S. Brandywine, S.S. Montebello.

THE MOORE DRYDOCK CO.

Oakland, Calif.

DRYDOCK, PAINT, MISCELLANEOUS: S.S. Minnesotan, Memphis City, S.S. Virginia, S.S. West Cactus, Cutter Tahoe, Western Union cable barge, Schr. Wm. H. Smith, Schr. Louise, Steel Ranger, S.S. Diana Dollar, S.S. Potrero, S.S. Panaman, S.S. American, S.S. Trinidad, F. H. Hillman, Seattle, S.S. Alaskan, S.S. Montanan, Lightship No. 83, El Cedro, Manoa, Tug H. J. Kaiser.

PRINCE RUPERT DRYDOCK AND SHIPYARD

Prince Rupert, B.C.

DRYDOCK, PAINT, MISCELLANEOUS: S.S. Prince Rupert, 28

fishing boats, 32 commercial jobs.

THE PUGET SOUND NAVY YARD

Bremerton, Washington

NEW CONSTRUCTION: U.S.S. Astoria (heavy cruiser No. 34) keel laid September 1, 1930; launched December 16, 1933; LBP 578'; Beam 60'1½"; Loaded Draft, 21'7"; geared turbine engines; B & W Express boilers; U.S.S. Worden (Destroyer No. 352), keel laid December 29, 1932; LBP, 334'; Beam 34'2½"; Loaded Draft, 10'10"; geared turbine engines; Yarrow type water-tube boilers; U.S.S. Cushing (Destroyer No. 376); LBP, 334'; Beam, 35'½"; Loaded Draft 10'10"; geared turbine engines; express type boilers; and U.S.S. Perkins (Destroyer No. 377); LBP 334'; Beam, 35'½"; Loaded Draft, 10'10"; geared turbine engines; express type boilers; building under provisions of National Industrial Recovery Act.

DRYDOCK, PAINT, MISCELLANEOUS: Arkansas, Colorado, Oklahoma, Houston, Detroit, Trenton, Kanawha, Haida, Mahopac, Tatnuck, Swallow, Challenge, Wando, Aroostook, Jason, Kearsarge, Patoka, Pawtucket, Prometheus, Pyro, AS-8 (Ex-Savannah).

UNITED STATES NAVY YARD

Mare Island, Calif.

NEW CONSTRUCTION: Smith, U.S. torpedo boat destroyer (DD-378); 340 ft. long, 35 knots speed; standard displacement, 1500 tons, estimated completion date, Feb., 1936. Preston, U. S. torpedo boat destroyer (DD-379); 340 ft. long; 35 knots speed; standard displacement, 1500 tons; estimated completion date, May, 1936.

Atlantic, Lakes, Rivers

AMERICAN BRIDGE COMPANY

Pittsburgh, Pa.

NEW CONSTRUCTION: Repairs to 29 coal barges (175'x26' 11") for Carnegie Steel Co.; 27 delivered. Also, order for repair of 20 barges, none delivered.

BATH IRON WORKS

Bath, Maine

NEW CONSTRUCTION: Hull No. 154, Dewey (DD 349), torpedo boat destroyer for U.S. Navy; keel laid Dec. 16, 1932; estimated launching, June, 1934; estimated delivery, August, 1934.

Hull No. 159, Drayton (DD 366), torpedo boat destroyer, U.S. Navy; keel laid, March 20, 1934; launching, no date set; estimated delivery November, 1935.

Hull No. 160, Lamson (DD 367), torpedo boat destroyer, for U.S. Navy; keel laid, March 20, 1934; launching, no dates set; estimated delivery, January, 1936. Speed loaded for all three of the above, 36½ knots. Standard displacement 1500 tons, turbine engines.

BETHLEHEM SHIPBUILDING CORPORATION

Fore River Plant,
Quincy, Mass.

NEW CONSTRUCTION: For the U. S. Navy: **Torpedo Boat Destroyer Farragut** (No. 348), 340 ft. long, 35 knots speed. Launched, March 15, 1934.

Heavy Cruiser CA-39, Quincy, 10,000 tons. Estimated delivery January, 1936.

Heavy Cruiser CA44, Vincennes, 10,000 tons. Estimated delivery January, 1937. Keel laid January 2, 1934.

Four Torpedo Boat Destroyers: **DD360, Phelps**, keel laid January 2, 1934; estimated delivery, December, 1935; **DD361, Clark**, keel laid January 2, 1934; estimated delivery February, 1936; **DD362, Moffett**, keel laid, January 2, 1934; estimated delivery April 1936; **DD363, Balch**, estimated keel laying, April, 1934; estimated delivery, June, 1936.

CHARLESTON DRYDOCK AND MACHINERY CO.

Charleston, S.C.

NEW CONSTRUCTION: Contract for building a 60-000-gallon gas, all-welded tanker; estimated delivery, March 1934; owners not announced.

DEFOE BOAT AND MOTOR WORKS

Bay City, Mich.

NEW CONSTRUCTION: U. S. Coast Guard Cutter No. 151, displacement tonnage 1000; keel laid, November 30, 1933; estimated launching, Aug. 1934; estimated delivery, Sept. 1934. U. S. Coast Guard Cutter No. 152, displacement tonnage 1000; geared turbine drive;

B. & W. boilers; 1500 h.p.; keel laid Dec. 15, 1933; estimated launching, Sept., 1934; estimated delivery, Oct. 1934.

THE DRAVO CONTRACTING CO.

Engineering Works Dept.,
Pittsburgh, Pa., and Wilmington,
Del.

NEW CONSTRUCTION: Contract No. 872, Hull No. 997, one diesel sternwheel towboat of 91 gross tons; contract No. 983, Hull No. 1151, one steel floating drydock, Bureau of Yards and Docks, Navy Department, of 4220 gross tons; contract No. W1004, Hull Nos. 1166, 1167, and 1168, three hopper type mdse. barges, size 132' x 35' x 11' for the Union Barge Line Corp., Pittsburgh, Pa., 2072 gross tons. Contract No. 1019, Hull No. 1169, 240 H.P. single screw diesel towboat; size 90'x21'x6'9"; 153 gross tons. Contract No. W1022, Hull No. 1170 (1) 13,500 bbl. welded gasoline barge. Hull size 195'x40'x13'3", Seaboard Shipping Corporation. Contract No. W1027; Hulls Nos. 1172-1173 1174-1175-1176-1177—six standard 130'x30'x7'6" steel S&G barges, 1500 gross tons. This makes a total of twelve hulls under contract, with a total gross tonnage of 7982.

ELECTRIC BOAT CO.

Groton, Conn.

NEW CONSTRUCTION: Hull No. 17, Cuttlefish, fleet submarine, (SS171) for U.S. Navy, keel laid October 7, 1931; launched July, 1933; and estimated delivery, May, 1934; standard displacement, 1125 tons. Also two river boats of about 250 tons, 145 feet long, **Amazonas** and **Loreto**, estimated delivery April, 1934. Hull No. 19, fleet submarine, **Shark**, (SS174); L.B.P. 298'; beam, 25'; standard displacement, 1315 tons; keel laid, October 24, 1933; estimated launching, April, 1935. Hull No. 20, **Tarpon** (SS175); L.B.P., 298'; beam, 25'; standard displacement, 1315 tons; keel laid, Dec. 22, 1933; estimated launching, February, 1935; possible delivery, November, 1935.

THE FEDERAL SHIPBUILDING AND DRYDOCK COMPANY

Kearny, N.J.

NEW CONSTRUCTION: Two destroyers, **DD368 Flusser** and **DD369 Reid** for the U. S. Navy, estimated

completion dates—**Flusser**, Nov., 1935; **Reid**, February, 1936; **Hulls Nos. 127 and 128, Destroyers;** Hull No. 129, barge for stock; keel laid, Dec. 13, 1933; L.B.P. 175; beam, 39; loaded draft, 12' 7"; 825 d.w. tons; launched March 2, 1934; delivered March 20, 1934. Hull No. 130, barge, for Gulf Refining Company, L.B.P. 205'; beam 39'; depth 12'7½"; 825 d.w. tons. Also three barges for undisclosed owner; **Hulls Nos. 131, 132, 133;** L.B.P. 205; beams 40', 39' and 39' respectively; depths 12'7½", 14'1-3/8", and 14' 1-3/8" respectively; 825 D.W. tons.

GREAT LAKES ENGINEERING WORKS

River Rouge, Mich.

NEW CONSTRUCTION: Contract to lengthen the **SS. Maine** 105 feet, 9 inches, making the new length, 353 feet, 4 inches, between perpendiculars. This ship was shortened last year to get through the St. Lawrence River locks. **Ship pulled apart**, Feb. 12, 1934; estimated completion, April 1, 1934; estimated delivery, Apr. 14, 1934.

INGALLS IRON WORKS

Birmingham, Ala.

NEW CONSTRUCTION: Hull No. 72, river dredge; keel laid, Nov. 6, 1933; launching, no date set; L.B.P. 140 feet; beam, 49 feet. **Hulls Nos. 73 and 74**, river pontoons; keels laid Nov. 1933; L.B. P. 140'; beam, 8'. Hull No. 75, **Wharfboat**; 230'x55'x9'9"; keel laid Jan. 1934; estimated launching, April 6, 1934.

MANITOWOC SHIPBUILDING CO.

Manitowoc, Wis.

NEW CONSTRUCTION: Three U.S. Coast Guard Patrol Boats, **Hull Nos. 277 Dione**; 278 **Electra**; and 279 **Pandora**; L.B.P. 165'; beam 25' 3"; loaded draft, 8' 6"; speed loaded, 18 knots; Diesel engines, 1300 S.H.P.; no dates set; **Hull No. 280**, Lighthouse tender, **Tamarack**, L.B.P. 111' 8"; beam 29'; loaded draft, 7'; speed loaded 10½ knots; Diesel electric, 450 S.H.P.

THE MARIETTA MANUFACTURING COMPANY

Point Pleasant, W. Va.

Three 165' Patrol Boats for U. S. Coast Guard, Washington, D. C., 25'3" beam, 13'2" depth; will draw approximately 7'; twin-screw type, propelled by two 650 horsepower Winton Diesel engines. Total dis-

May

placement of each vessel approximately 300 tons; required speed 16 knots—now under construction; estimated delivery dates, Oct. 9, 1934; Oct. 29, 1934; and Nov. 18, 1934 respectively.

Two 132'x35'x10' steel covered cargo barges of 850 tons capacity for stock account under construction.

Two Side Wheel Self-Propelled 34" Pipe Line Dredges of the Dustpan Type. Total contract price \$1,016,500.00. Delivery in 180 and 210 days — Length, molded, 270'0"; length overall, 277'1½"; breadth, molded, 50'0"; breadth overall, 84'8½"; depth, molded, 8'6"; depth midships, 9'3", first keel to be laid this month.

MIDLAND BARGE COMPANY (Subsidiary of Treadwell Construction Co.)

Midland and Erie, Pa.

NEW CONSTRUCTION: Hulls 248 and 249, two steel Needle Flats for U.S. Engineer's Office, Cincinnati, Ohio, 48 pontoons, 48' x 18' x 210' for U.S. Engineers, Memphis, Tenn. Two barges, 40'x18'x3' for U. S. Engineer's Office, Chicago, Ill. Completed and delivered.

One barge 100'x24'x7' for Parsons & Roller Co.

NASHVILLE BRIDGE CO., Nashville, Tenn.

NEW CONSTRUCTION: Hull No. 285, Dredge; keel laid February 5 1934; launched March 5, 1934; L.B.P. 90'; beam, 22'; loaded draft, 5'.

Hull No. 286, Snag boat for U.S. Government, keel laid April 1, 1934; estimated launching, June 1, 1934; estimated delivery, November, 1934; L.B.P. 170'; beam 38'; loaded draft 4½'; 600 I.H.P. engine; 2 boilers.

Hulls No. 287, 288, 289, three deck barges for stock.

NEWPORT NEWS SHIPBUILDING & DRYDOCK CO.

90 Broad Street, New York

NEW CONSTRUCTION: Contracts for H 359 aircraft carrier CV5, Yorktown, for U.S. Navy estimated delivery August, 1936 and H360 aircraft carrier, CV6, Enterprise, for U.S. Navy, estimated delivery, December, 1936. Also Ranger, hull 353, aircraft carrier No. 4 for U.S. Navy, keel laid September 26, 1931, launched February 25, 1933, estimated delivery May 1, 1934. There is also under construction Hull 357, freight vessel for the A. H. Bull Steamship Company, 40

West Street, New York, 410' length, 55' beam, 30'6" depth, geared turbine, delivery estimated April 30, 1934. Also Hull 358, same as above, delivery estimated during May, 1934.

THE NEW YORK SHIPBUILDING COMPANY Camden, N.J.

NEW CONSTRUCTION: Contracts for four destroyers: Hull No. 408, Porter (DD356); Hull No. 409, Selfridge (DD357); Hull No. 410, McDougal (DD358); Hull No. 411, Winslow (DD359); of 1850 tons each; keels laid, Dec. 1933. Also two light cruisers: Hull No. 412, Savannah (CL42). Hull No. 413, Nashville (CL43), of 10,000 tons each for the U. S. Navy Department; estimated delivery dates are as follows: DD356, Porter, Dec., 1935; DD357, Selfridge, Feb., 1936; DD358, McDougal, Apr., 1936; DD359, Winslow, June, 1936; CL42, Savannah, Aug., 1936; CL43, Nashville, Dec., 1936. Oil tanker, No. 414, and oil tanker No. 415, for Standard-Vacuum Transportation Company, 15,000 tons D.W. each; keels laid March 26, 1934; delivery early 1935.

THE PUSEY & JONES CORP. Wilmington, Del.

NEW CONSTRUCTION: Nos. 56, Algonquin; 57, Comanche; and 58, Mohawk; cruising cutters, building for Treasury Department, U. S. Coast Guard Service; L.B.P., 150'; beams, 36'; loaded draft 13'; speed loaded, 15 miles per hour; turbine engines, 1500 S.H.P.; two watertube boilers, 325 pounds pressure, construction schedule: No. 56, keel laid, January 16, 1934; estimated launching, June 25, 1934; estimated delivery, September 29, 1934; No. 57, keel laid, January 17, 1934; estimated launching, August 26, 1934; estimated delivery, November 2, 1934; No. 58, keel laid, February 1, 1934; estimated launching, September 20, 1934; estimated delivery, December 8, 1934.

SPEDDEN SHIPBUILDING CO. Baltimore, Md.

NEW CONSTRUCTION: Hull No. 274 (Diesel), Electric, wrought iron hull, Boarding Cutter, for the U. S. Public Health Service, Staten Island N. Y. keel laid March 15, 1934; estimated launching, July 15, 1934; estimated delivery, Dec. 27, 1934; L.B.P. 100'8"; beam, 23'; loaded draft, 10'; speed loaded, 12

knots; two 360 B.H.P. Fairbanks Morse engines. Contract received Jan. 11, 1934.

SUN SHIPBUILDING & DRY DOCK CO.

Chester, Pa.

NEW CONSTRUCTION: Hull No. 150, welded Diesel electric barge for Atlantic Refining Co., L.B.P. 190'; beam, 34'; estimated delivery, May 15, 1934.

TODD SHIPYARDS CORP. 25 Broadway, New York City (Robins Dry Dock and Repair Company, Brooklyn, N.Y.)

CONTRACTS FOR REPAIR: U.S. Army transport Republic, at a price of approximately \$14,280.40. Collision damage to SS. Munargo of the Munson Steamship Lines, N.Y. Price involved, \$72,000, delivery to be made in 45 days.

UNITED DRYDOCKS, Inc. Staten Island, N.Y.

NEW CONSTRUCTION: DD364, destroyer Mahan, estimated delivery, Oct. 1935, and DD 365, destroyer Cummings, estimated delivery, Dec., 1935, for U. S. Navy.

No. 822, tanker, keel laid February 1 1934; estimated launching, May 15, 1934; estimated delivery, June 30, 1934.

Hull No. 823, tanker, keel laid, March 6, 1934, estimated launching, August 2, 1934; estimated delivery, Sept. 31, 1934.

Hull No. 824, keel laid April 3, 1934; estimated launching, July 2, 1934; estimated delivery, August 31, 1934. Data on all three above: L.B.P., 252'; Beam, 40'; Depth, 14'; D.W. tons, 1200; 2 Diesel engines of 375 BHP each, building for Standard-Vacuum Transportation Co.

Hulls No. 825, 826, 827 and 828—barges; the first three for Nielson and Huszagh, keels laid, April 15; estimated launching, May 28, estimated delivery, June 1; 100'x30'x8'; the last for Newton Creek Towing Co.; keel laid, May 1; estimated launching, June 11; estimated delivery, June 15; 280'x40'x12'6" (being built at Crane, 27th St. Plant, Brooklyn, N.Y.)

UNITED STATES NAVY YARD Boston, Mass.

NEW CONSTRUCTION: Destroyer DD 370, Case, L.B.P. 334 ft., beam 35 ft.; estimated delivery, Feb., 1936; destroyer DD371, Conyngham, L.B.P. 334 ft., beam 35 ft., estimated delivery, May, 1936; de-

stroyer DD354, Monaghan, L.B.P. 334 ft., beam 34 ft. 2 in., keel laid, November 21, 1933; estimated delivery, May, 1935; destroyer DD-351, McDonough, keel laid May 15, 1933, L.B.P. 334 ft., beam 34 ft. 2 in., estimated delivery, Feb., 1935; U.S. Navy.

UNITED STATES NAVY YARD Charleston, S.C.

NEW CONSTRUCTION: U.S.S. Charleston, gunboat (PG 51) for U.S. Navy, building period assigned by Navy Department, Nov. 1, 1933, to Feb. 1, 1936. Work started, Feb. 1, 1934. Also assigned **Coast Guard Harbor Cutters 61, 63, and 64;** work started Feb. 1, 1934; expect to lay keels about June 1. One **Coast Guard Cutter** (2000 tons). No dates set.

UNITED STATES NAVY YARD New York, N. Y.

NEW CONSTRUCTION: Hull No. 32, **New Orleans**, heavy cruiser; keel laid, March 14, 1931; launched, April 12, 1933; delivered, Feb. 15, 1934.

Hull No. 350, **Hull**, destroyer; keel laid, March, 1933; no further dates set; L.B.P. 334'; beam, 34'2"; standard displacement, 1500 tons; geared turbine engines; express type boilers.

Hull No. 353, **Dale**, destroyer, dimensions same as above, no dates set.

Hull No. 41, **Brooklyn**, light cruiser, no dates set; L.B.P. 600'; beam 61'8"; standard displacement, 10,000; geared turbine engines; express type boilers.

Hull No. 50, **Erie**, gunboat, no dates set; L.B.P., 308'; beam, 41'; standard displacement, 2000 tons; geared turbine engines; express type boilers. Building for U.S. Navy.

UNITED STATES NAVY YARD Philadelphia, Pa.

NEW CONSTRUCTION: Philadelphia (CL41), light cruiser, 10,000 tons, length overall 608'4"; breadth 61'9" extreme; depth 34' at side; estimated completion, Nov., 1936. **Minneapolis (CA36)**, heavy cruiser, 10,000 tons, length overall 607'6"; breadth 59'6" molded; depth 35'8"; tentative delivery date Aug. 1934; **Aylwin (DD355)**, destroyer, 1,500 tons; **Cassin (DD372)**, destroyer, 1,500 tons; **Shaw (DD373)** destroyer 1,500 tons for last three above; length overall 341'3", breadth 34'11 1/2" extreme; depth 23'2" at

Book Reviews

ADVENTURE'S A WENCH. By Charles Veil. 340 pages bound in black cloth with scarlet decorations. Published by William Morrow and Co., Inc. Price \$3.00.

An inimitable tale by an inimitable rogue, "Adventure's a Wench" retails the fortunes and misfortunes of the author in pursuit of adventure, that "little female devil" who is "fickle and high-hat and must be respectfully wooed." Charles Veil is a thirty-six year old American soldier of fortune whose experiences as a gaucho in South America, ace in the Lafayette Escadrille, lover of the queen of the Marseilles underworld, and a dozen other strange roles in strange places are the sort of thing that make good reading and hazardous living.

WHO RULES AMERICA? By John McConaughy. 338 pages bound in scarlet with gold markings. Published by Longman's, Green & Co. Price \$3.00.

A searching study of "a century of invisible government." "Who Rules America?" is a posthumous book, which finds, for practically every graft of the present a parallel in the past. It is exciting reading for an aroused citizenry facing the present consequences of the grand debauch of the 1920's and the debacle of 1929; and leaves the reader regretting that this keen observer behind the political scenes died before the play which he reports so brilliantly has reached a happy ending.

I WENT TO PIT COLLEGE. By Lauren Giffillan. 288 pages bound in gray cloth with red. Published

by The Viking Press. Price \$2.50. Lauren Giffillan graduated from Smith College in 1931. There were no jobs for college graduates or anyone else. After trudging the streets of "the New York desert of depression and joblessness" for two months with ever flattening pocket-book and ever dimming hope, she sought the "oasis of a mining town." She reports exactly what she saw and what she did, and her report is incredible. This is the stuff of the wildest fiction told with the unmistakable frankness of stark truth. Absorbing from beginning to end.

WHATEVER GOES UP, by George C. Tyler. 383 pages, beautifully bound in red and gold. Published by Bobbs-Merrill Company. Price \$3.00.

George C. Tyler was born with a stupendous nerve which carried him through sixty-odd years of strenuous living, from direst failure to peak of success, and leaves him still the kid who "ran away from Chilli-cothe to take chances with sixty-five cents in his pockets and a burning desire to see the world." He went home several times—whenever he needed a square meal and a new suit; until his father—a long-suffering, unusually indulgent parent—started him in the show business. When this went broke, Tyler started out on his own as an advance agent. He remembers walking the floor with Eugene O'Neil when that now famous playwright was "a howling 15 pounds of infant," and many other things which makes the reader follow his memoirs with as absorbed interest as if they were the goriest mystery tale.

(Please turn to Page 160)

(Continued from Page 150)

| | |
|---------|-----------|
| A | \$417,000 |
| B | 83,980 |
| C | 500,980 |

Sum S.B. & D.D., Chester, Pa.

| | |
|---------|-----------|
| A | \$425,000 |
| B | 111,763 |
| C | 536,763 |

Bethlehem S.B. Corp., N.Y. City.

| | |
|---------|-----------|
| A | \$484,000 |
| B | 102,980 |
| C | 586,980 |

Berg S.B. Co., Seattle, Wash.

| | |
|---------|-----------|
| A | \$522,195 |
| B | 67,932 |
| C | 590,127 |

UNITED STATES NAVY YARD Portsmouth, N. H.

NEW CONSTRUCTION: S.S. 172, **Porpoise**; keel laid, October 27, 1933; estimated delivery, Feb. 1936. **SS 173, Pike**, keel laid, Dec. 20, 1933 estimated delivery, May, 1936; **Coast Guard Harbor Cutter 62**; estimated delivery, Nov. 1934.

avoid possible burns from the gas.

Hang the canister holder on the chest by the neck straps, then tighten the belt so that the holder rests snugly on the chest.

Remove the cardboard seal from the bottom of canister. This is necessary because the inhalation valve is at the bottom of the canister.

After a canister has been used in a mask, the hand on the timer cannot be turned back to zero. For this reason, before the face-piece is put on, the wearer should make note of the position of the timer hand. He should return to fresh air and replace the canister with a new one after the hand on the timer has made one complete revolution. This takes about two hours which should be arbitrarily prescribed as the life of an "All-Service" canister.

Put on the face-piece by holding the temple strap of the harness and the side of the face-piece between the thumb and fingers with the thumbs on the inside of the face-piece. Hold the chin well forward and insert it into the lower part of the face-piece. Slip the harness over the head, pulling the mask comfortably against the face. Adjust the temple straps, first, by grasping the straps at the end and pulling them back, then, adjust the balance of the head straps so that the mask fits the face comfortably tight.

After this has been done, pinch the tube between the canister and face-piece and inhale. If tightly adjusted, the face-piece will collapse against the face.

For his own safety, any person wearing a gas mask must be calm and breathe normally at all times.

● Canister Service

The life of the canister depends on (a) the concen-

tration of the gas, and (b) the length of exposure. Some canisters break down more slowly than others. There is no positive method of telling how long a canister will last. The time limit will range from fifteen minutes to two hours depending on (a) and (b) above. When the canister starts to break down in gases that have an odor, a faint odor of the gas will be noticed by the wearer. At the first trace of gas in the mask, the wearer should at once seek fresh air, replace the canister with a new one and destroy the old one.

Air enters through a check valve in the bottom of the canister and leaves at the top through a "timer", which records the amount of usage. As carbon monoxide is entirely odorless, colorless, and tasteless and as "Hopcalite" (one of the absorbents used in the canister) is vitiated by water vapor, a timer had to be provided to record the service time of the canister. This simple mechanism consists essentially of a light metal disc over the opening of the canister which is lifted with each inhalation. This movement actuates a system of gears which causes the hand on the dial of the timer to slowly rotate in a clock-wise direction. It takes about two hours for this hand to make a complete revolution, which more or less arbitrarily is taken as the life of the canister.

Air is conducted from the timer to the face-piece through a rubber tube, corrugated to increase flexibility and prevent collapse. The inhaled dry air enters the face-piece through two tubes, that discharge over the eye-glasses, which prevents fogging. The exhaled air passes out of the face-piece through an outlet valve.

● Cleaning and Stowing

Immediately after finishing with the mask and be-

| American Documented Marine According to Age of Vessels, as of June 30, 1933. | | | | | | | | | | | | |
|--|--------|--------------------|------------|------------------|--------|--------------------|------------|------------------|--------|--------------------|------------------|-------|
| MERCHANT VESSELS | | | | | | | | | | | | |
| Age of vessel. | Steam | | | | Motor | | | | Sail | | | |
| | Number | % of total vessels | Gross tons | % of total gross | Number | % of total vessels | Gross tons | % of total gross | Number | % of total vessels | % of total gross | |
| 5 years or less..... | 160 | 2.94 | 511,498 | 4.51 | 1,037 | 11.69 | 225,111 | 20.98 | 19 | 1.95 | 889 | 0.16 |
| Between 5 and 10 years..... | 298 | 4.71 | 459,748 | 3.99 | 2,331 | 26.74 | 253,538 | 23.60 | 33 | 3.69 | 905 | 0.16 |
| Between 10 and 20 years..... | 2,035 | 37.16 | 7,251,511 | 61.52 | 29,077 | 334.02 | 1,683,931 | 153.62 | 220 | 17.93 | 213,595 | 37.94 |
| Over 20 years..... | 3,023 | 55.20 | 5,534,908 | 29.98 | 4,766 | 54.56 | 1,267,782 | 11.80 | 955 | 77.63 | 247,570 | 61.74 |
| Total..... | 5,476 | | 11,767,655 | | 12,766 | | 1,074,565 | | 1,227 | | 562,959 | |
| Unrigged | | | | | | | | | | | | |
| Age of vessel. | Number | % of total vessels | Gross tons | % of total gross | Number | % of total vessels | Gross tons | % of total gross | Total | | | |
| | Number | % of total vessels | Gross tons | % of total gross | Number | % of total vessels | Gross tons | % of total gross | | | | |
| 5 years or less..... | 480 | 8.79 | 124,765 | 7.63 | 2,526 | 10.16 | 882,553 | 5.86 | | | | |
| Between 5 and 10 years..... | 1,094 | 20.04 | 274,441 | 16.79 | 3,756 | 15.11 | 998,652 | 6.63 | | | | |
| Between 10 and 20 years..... | 1,815 | 33.25 | 635,363 | 38.86 | 7,742 | 31.21 | 8,569,300 | 56.90 | | | | |
| Over 20 years..... | 2,070 | 37.92 | 650,416 | 36.72 | 10,844 | 43.49 | 4,609,682 | 30.61 | | | | |
| Total..... | 5,459 | | 1,684,985 | | 24,868 | | 15,060,187 | | | | | |
| YACHTS | | | | | | | | | | | | |
| Age of vessel. | Steam | | | | Motor | | | | Sail | | | |
| | Number | % of total vessels | Gross tons | % of total gross | Number | % of total vessels | Gross tons | % of total gross | Number | % of total vessels | % of total gross | |
| 5 years or less..... | 2 | 3.33 | 3,442 | 20.51 | 1,041 | 29.50 | 63,502 | 34.48 | 16 | 19.75 | 835 | 24.29 |
| Between 5 and 10 years..... | 10 | 16.67 | 20.04 | 1.001 | 20.36 | 50.03 | 29.33 | 16 | 19.75 | 475 | 13.80 | |
| Between 10 and 20 years..... | 10 | 16.67 | 3,236 | 19.29 | 798 | 22.62 | 30,110 | 20.72 | 11 | 17.28 | 465 | 33.29 |
| Over 20 years..... | 48 | 80.00 | 10,104 | 60.20 | 689 | 19.52 | 20,188 | 15.47 | 35 | 43.22 | 1,646 | 47.82 |
| Total..... | 68 | | 16,782 | | 3,529 | | 114,115 | | 81 | | 3,442 | |
| Houseboats | | | | | | | | | | | | |
| Age of vessel. | Number | % of total vessels | Gross tons | % of total gross | Number | % of total vessels | Gross tons | % of total gross | Total | | | |
| | Number | % of total vessels | Gross tons | % of total gross | Number | % of total vessels | Gross tons | % of total gross | | | | |
| 5 years or less..... | 3 | 17.64 | 217 | 10.31 | 1,062 | 28.76 | 67,997 | 32.94 | | | | |
| Between 5 and 10 years..... | 6 | 33.33 | 96 | 4.56 | 1,020 | 27.63 | 54,586 | 26.44 | | | | |
| Between 10 and 20 years..... | 3 | 16.67 | 169 | 7.95 | 195 | 22.43 | 12,844 | 20.46 | | | | |
| Over 20 years..... | 10 | 45.45 | 1,388 | 66.96 | 780 | 21.18 | 41,626 | 20.16 | | | | |
| Total..... | 22 | | 2,104 | | 3,692 | | 206,473 | | | | | |

Age of American merchant and pleasure vessels.

STRENGTH · PERMANENCE · STABILITY

Fire · Automobile · Marine · Casualty · Fidelity · Surety

FIREMAN'S FUND GROUP

Fireman's Fund Insurance Company — Occidental Insurance Company

Home Fire & Marine Insurance Company

Fireman's Fund Indemnity Company — Occidental Indemnity Company

New York · Chicago · SAN FRANCISCO · Boston · Atlanta

fore returning it to the case, the canister should be removed from the breathing tube. The rubber parts, especially those which have come in contact with the wearer's face, should be sterilized by immersion for ten minutes in a solution of formalin, made by placing one part of 40 percent formaldehyde in nine parts of water. This solution can be made up in advance and re-used over a short period, provided the container is kept tightly closed to prevent evaporation.

After the parts have been removed from the solution they must be thoroughly dried; a new canister (after a canister has been used once it should be destroyed) should be attached to the hose and the date scratched on it. The mask should then be returned to the case. If the above procedure is followed, the mask is always ready for emergency use.

Care must be taken when replacing the mask in the carrying case. It is most important to see that there are no wrinkles or kinks in the rubber parts of the facepiece or breathing tube. If the rubber parts are allowed to lie in a folded or wrinkled position in the case, the rubber will deteriorate, crack or vulcanize.

The case should be kept in a cool place and away from oil and grease so as to protect and prolong the life of the rubber parts.

The entire mask assembly should be examined not less frequently than every thirty days, and any deteriorated part replaced so as to be certain that the mask is always in a serviceable condition.

Two canisters should be kept in each case, one on the mask (do not remove the bottom seal until it is to be worn) ready for use, and one reserve with both top and bottom seals in place. The canister on the mask should have scratched on it in a conspicuous place the date that it was attached.

Canisters should not be left on the mask longer than twelve months. When a canister has been on the mask a year it should be removed and destroyed. The reserve should be attached in its place, and a new canister substituted as the reserve.

Canisters are marked with the date of manufacture. Any canister over two years old must not be used in a gaseous atmosphere.

● Drills with the Mask

In order that the licensed officers may be familiar

with the mask and prepared to wear it in an emergency, they should put it on and wear it for a few minutes in normal atmospheres at intervals not less frequent than twice each year. During such drills the canister should be removed from the mask and the bottom seal left in place.

The chief engineer should be custodian of and held responsible for the stowage, maintenance, drills with and sterilization of the ammonia canister gas masks placed aboard his ship.

New Lighthouse Replaces Old Tower Near Honolulu

A new lighthouse, of reinforced concrete construction, has recently been completed at Barbers Point, in the Hawaiian Islands. This new and taller structure replaces a lighthouse built at this point in 1888, during the reign of King Kalakaua. The old tower, constructed of coral rock, had deteriorated to such a degree that it was feared that it would topple over, destroying the lens and perhaps causing loss of life.

The new tower is 72 feet high, and from it is shown a light of 750,000 candlepower, visible for fifteen miles. The illuminant is electricity, the current being supplied from engine generators, which also light the keeper's quarters and the other buildings of the station.

The incandescent oil vapor lamp, used in the old tower, has been kept as a standby in case the electric current should fail. Counterweights are provided to revolve the lens should the electric drive be disabled. There is a substantial increase of the candlepower of the light, and there will also be a reduction in operating costs compared with the old light.

Barbers Point Lighthouse is located on the south coast of the island of Oahu, and is approximately twelve miles to the westward of Honolulu. It serves as a leading light for all vessels approaching Honolulu from the Orient.

The old tower, just razed, was the last of the old Hawaiian lighthouses. At the time it was built there were less than a half dozen lighthouses in the Hawaiian Islands, including Honolulu Harbor lights.

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Marine Insurance Notes

Hurricane Losses. The extension of marine cargo coverage to include storage periods, both before and after shipping, combined with the increasing number of hurricanes on the Atlantic coast of North America, is causing some worry to underwriters. There seems to be no spot adjacent to the Gulf of Mexico and the West Indies that is immune from damage by these storms. The East coast of Mexico was thought

to be out of their range, but during the season of 1933 that coast received more damage than any other. During fifty years there have been 355 of these storms, or a yearly average of seven. During 1933 there were 19, of which three were extremely violent.

Reduction in World Tonnage. Lloyd's returns for the third quarter of 1933 show for vessels of 500

tons or over, a total gross reduction in world tonnage of 704,218 gross tons, as compared with 655,060 and 689,252 gross tons for the first and second quarters, or a total of 2,048,530 gross tons for the nine months period. During the same period new hulls launched totaled 304,267 gross tons.

Lace and Buttons. Judgment has recently been rendered in a French court on an interesting case, dating back to April 1930. In that month and year a man shipped from Paris to Constantinople through the Le-

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INSURANCE

BROKERS FOR THE ASSURED—AVERAGE ADJUSTERS

vant Express Company, two cases, with contents described as Lace and Buttons, insured at 269,000 francs. The shipper obtained 90,000 francs cash as a loan on this policy from a Parisian broker. The consignee had the cases opened in the customs warehouse at destination and they were found to contain old iron and hemp. The broker holding the policy as security for his loan brought suit against the underwriters for payment of the face value of the policy. The Underwriters filed a criminal action against the broker and the firm of button dealers whose name appeared on case and bills of lading. The criminal action proved the broker and button dealer to be innocent, but involved the shipper and consignee who were proved guilty of fraud and sentenced to four years hard labor.

A New Collision Eliminator. The British National Laboratory at Teddington, England, has recently developed a new type of wireless direction finder, which will receive and indicate the direction of signals of only one-hundredth second duration. Equipment of sea-going vessels with this apparatus is said to practically eliminate danger of collision in fog.

Pacific Coast Agency Merger. Early in April, Cosgrove & Company, Inc., of San Francisco, completed the purchase of the interests and operations of the agency firm of Rule and Sons, Los Angeles, and merged therewith their own former

Los Angeles branch under the title of Cosgrove and Company of Los Angeles. Officers of the new concern are: President, Willard W. Keith, formerly vice-president of Cosgrove and Company, Inc.; Vice-President, S. L. Carpenter, formerly vice-president and manager of Rule and Sons; Chairman of the Board John E. Cosgrove; 2nd Vice-President, Andrew J. Lynch; 3rd Vice-President, John T. Collins.

The agency of Rule and Sons, established in 1912, included representation of the following firms: Aetna, Citizens, Fidelity Guaranty and Fire, Fidelity-Phoenix Fire Association, London and Lancashire, North British & Mercantile, Northern Assurance, St. Paul Fire and Marine, Scottish Union and National, Rochester American, Travellers Fire, United States Fire, United States Merchants and Shippers.

Marine Underwriters Election. On April 2, the Association of Marine Underwriters of the United States held its annual meeting at New York and re-elected officers and executive committee. Officers are: President, S. D. McCone; Vice-President, H. H. Reed; Treasurer, J. T. Byrne; and Executive Secretary, E. G. Driver. Douglas F. Cox, F. B. McBride, W. H. McGee, H. H. Reed, H. V. Smith, Hendon Chubb, and W. W. Parsons compose the ex-

ecutive committee. President McCone has re-appointed the same standing committees.

Inland Marine Appointment. Charles H. Williamson, recently vice-president in charge of the marine department of Rule and Sons, Los Angeles, a veteran Pacific Coast marine executive, has been appointed manager of the San Francisco inland marine department of the Ohio Eastern Underwriters. Some years back, Mr. Williamson was president of Willeox, Peck and Hughes, San Francisco.

Encouragement in Northwest. R. J. Lutich, president of the Association of Marine Underwriters of San Francisco, recently returned from a two-weeks business trip through the Puget Sound Territory, declared that conditions there looked favorable for trade improvement. As Pacific Coast marine manager for George E. Billings Company, Lutich visited Portland, Seattle, Vancouver and Victoria.

Marine Premiums for 1933. The record of American Ocean and Inland Marine insurance business for 1933 has recently been published by the Shipping Board Bureau of the United States Department of Commerce. On Ocean Marine the total net premium returns were \$815,708.00 with a net loss incurred of \$326,559.00, a loss ratio of forty per cent. On Inland Marine the total net premium returns were \$328,813.00 with a net loss incurred \$170,881.00 or a loss ratio of 51.9 per cent.

Freights, Charters, Sales

April 23, 1934.

The following charters have been reported:

GRAIN: British steamer Jutland, British Columbia to U.K./Cont., 18/6, April; British steamer Tre—, Vancouver, B.C., to London, 17 3/4, March; British motorship Aldington Court, British Columbia to Dublin and Belfast, Anglo Canadian Shipping Co., May; British steamer Dalcross, British Columbia to London, April, Anglo Canadian Shipping Co.; Finnish steamer Olovborg, British Columbia to Liverpool and Garston, April, Anglo-Canadian Shipping Co.; British steamer Trevelor, Portland to Ireland, 20/-,

April, Kerr, Gifford & Co.; a steamer, Portland to Ireland, 20/-, May, Kerr, Gifford & Co.; British steamer Antigone, Portland or Puget Sound to Ireland, 20/-, April, Kerr, Gifford & Co.; British steamer Leeds City, Portland to Shanghai, April, Chinese Government Agency, Norton, Lilly & Co., loading agents; American steamer San Felipe, Portland to Shanghai, April, by Chinese Government Agency, Norton, Lilly & Co., loading agents; American steamer Stuart Dollar, Portland to Shanghai, by Chinese Government Agency, Norton, Lilly & Co., loading agents, April; British motorship Houston City, Portland to Shanghai, by Chi-

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nese Government Agency, Norton, Lilly & Co., loading agents, April; British steamer Victoria City, Portland to Shanghai, May, Chinese Government Agency, Norton, Lilly & Co., loading agents.

LUMBER: British steamer Harmanth, British Columbia to Australia, B. C. Shipping Agencies, April; Norwegian motorship Bronxville, Columbia River and Grays Harbor to Shanghai, lumber and logs, April, Anglo Canadian Shipping Co.; Norwegian motorship Fernwood, Coos Bay and Columbia River to Shanghai, April, Anglo Canadian Shipping Co.; British steamer Aymeric, British Columbia to Australia, April, Yamashita Shipping Co.

TANKERS: Danish motorship Caroline Maersk, California to three ports Chile, dirty, 9/6, April; British motorship Corabank, California to Australia, 11/-, May, with other discharging options; Norwegian motorship Attila, California to Australia and/or Tasmania, two trips, 12/6, April; American steamer Frank G. Drum, California to La Union, dirty, 22¹/₂c, May; Norwegian motorship, Langanger, Cal., to North China, 12/-, option Philippines 12/3, April/May; Norwegian

motorship Sysla, California to Japan, 11/-, option Philippines, 11/6, Australia 13/3, May/June; Dutch motorship Mijdrecht, California to Australia, 12/-, May/June; Dutch motorship Kattegat, California to Spain, dirty, 17/6, June/July.

MISCELLANEOUS: British stmr. Harpasa, British Columbia to Liverpool and Manchester, April, Anglo Canadian Shipping Co.; Danish motorship Nordbo, British Columbia to Hull, April, Anglo Canadian Shipping Co.

TIME CHARTER: British motorship Westmoor, delivery North Pacific, redelivery China or Japan via Australia, 4/-, 3 months, April; Danish motorship Astoria, delivery North Pacific, redelivery Japan, 1 trip, 5/-, May, Yamashita Shipping Co.; Norwegian motorship Arna, delivery North Pacific, redelivery China, one trip, Strange & Co.; American tank steamer Tamiagua, California to North of Hatteras or Gulf, one year, dirty, 56c, April.

SHIPPING SALES: British stmr. Canadian Farmer, Great Lakes Intercoastal Line to Captain U. M. Anderson, \$12,000; British steamer Canadian Beaver Great Lakes Intercoastal Line to Dulien Steel Products Co. of Seattle, \$3,500; Ameri-

can steamer Chehalis, W. T. Cleverdon to E. H. Hansen, Los Angeles; American steamer Golden River, Oceanic & Oriental Navigation Co. to Matson Navigation Co.; American steamer Prentiss, H. P. Shupp to Cia Naveira Shu Cas S. A. of Ensenada, Mexico; American Tank steamer Nelson, Cuban Distillery Co. Hillcone Steamship Co.

PAGE BROTHERS
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Book Review

THE NAVIGATION OF SMALL YACHTS, by John Irving, Lieut.-Commander R.N. (Retired). 288 pages with an excellent index, bound in pale green with blue printing. Published by Edward Arnold & Co. Price 15/- (In the United States, Longman's Green Co. Price \$6.00.)

This book supplies all the knowledge which the average yachtsman would need to navigate a yacht anywhere near the coast, and includes enough deep-sea navigation to enable trips of not too great distance to be undertaken, using sun, moon, and stars as aid.

Book Reviews

(Continued from Page 154)

KNOTS, SPLICES, AND FANCY WORK. By Chas. L. Spencer. 140 pages, profusely illustrated, bound in blue buckram, with gold stampings. Published by Brown, Son & Ferguson, Ltd. Glasgow. Price \$1.50.

Among the crafts that are a test of skill for those who like to believe themselves seamen, knotting has a very high place. Even the simpler of the knots are difficult to those who are not in regular practice, and as for the fancy work which was the pride of the old salt, little of it has been seen of late.

Now, fortunately, the author, after many years of laborious search, is able to present some of the best of the art in a form that should not unduly tax the skill of anyone who has handled rope.

This splendid book is amply illustrated and will be an invaluable guide to those who have the salt of the sea in them.

THE HUMAN SIDE OF THE NEWS. By Edwin C. Hill. 226 pages bound in green with gold

markings. Published by Walter J. Black, Inc. Price \$1.00.

A collection of some of Edwin C. Hill's most fascinating radio tales, "The Human Side of the News" takes the reader to the far corners of the earth, revealing the intimate human touches which make the broadcasts of this outstanding reporter stick in the memory of the listener or reader long after the evanescent news of the day has been forgotten. Anyone who wants a permanent record of some of Mr. Hill's best stories will want this volume.

WE SUGGEST FROM APRIL BOOK REVIEWS

Bredon and Sons, by Neil Bell—Little, Brown & Company.

Rough Hewn, the Autobiography of a Modern Sinbad—D. Appleton-Century Company.

Men Against the Sea, by Charles Nordhoff and James Norman Hall—Little, Brown & Company.

Treeless Eden, by Francine Findley—Alfred H. King, Inc.

German Family, by L. C. N. Stone—Bobbs-Merrill Co.

Sea-Going Libraries and How You Can Help

Our good friend, M. E. Hopkins, superintendent of the Seamen's Church Institute, tells us of the plans for observing Seamen's Book Week, the eleventh annual occurrence being May 1 to May 8.

Last year 9,469 books were received from the general public and 3,581 from libraries for sea-going readers—men who are handicapped in their access to public libraries.

Pacific Marine Review desires to do its part in publicizing this worthwhile cause and bespeaks the cooperation of all its maritime readers. A carefully organized service has been developed to procure and make available these "sea-going" libraries. The service is also extended to the Coast Guard, light-houses and marine hospitals.

Superintendent Hopkins reports: "During the year 1933, 714 ships leaving the port of San Francisco received libraries totaling 47,765

(Please turn to Page 19)

Condenser Electrolysis Eliminated

Marking another step in the application of the highly successful Marine Electrolysis Eliminators to ships of all types, comes the announcement that tests on several types of steam driven vessels show important correction of electrolytic corrosion. During the past three years the Marine Electrolysis Eliminator Corporation of Seattle has been perfecting designs and wiring circuits on a simple fool proof, and economical system of eliminating the disastrous results of stray electric currents generated by different metals in contact with salt water. There is present on every ship many groupings of metals in hull, shafting, propellers, condensers and machinery, which, in combination with salt water, set up electric currents that cause corrosion of different kinds with resulting costly damage that may appear over widely different parts of the ship's machinery.

Beginning with the more or less

De luxe
P. S. N.
night boat
and ferry
Iroquois.



well defined examples found on small diesel driven commercial and fishing craft, experiments have been extended to all classes of vessels, of all types of power and all types of wood and steel construction. The Marine Electrolysis Eliminator is a simple system of wiring arranged in conjunction with a specially designed shell and soft alloy core bolted to the outer skin of a ship. The wiring layout is arranged to reverse the flow of electric currents so that the electrode or core becomes the anode, thus reversing the current so that all parts in the cathode area on the hull or machinery become immune from electrolytic corrosion. The inexpen-

sive cores are gradually destroyed and can be replaced in a few minutes during drydockings for hull painting. Specially designed circuits and insulated shells complete the installation.

Cases where diesel engine jackets became so clogged with corroded metal that severe heating of the engine occurred have been completely corrected. Other conditions involving corrosion of shafting or propellers and even hull parts have been eliminated by the application of this system. The latest application involves saving costly condenser tubing on steam vessels. The new order of ship operation finds many valuable runs open to the older steam vessel and every device must be applied to cut operating costs and reduce layup time due to repairs.

The most recent installation of Marine Electrolysis Eliminators is being watched by Puget Sound operators with keen interest. Four of the fleet of ferries operated by the Puget Sound Navigation Company on various types of runs have had sets of Eliminators fitted which



Passenger-freight night boat
Sol Duc (steamer) operating
between Seattle and
Bellingham.

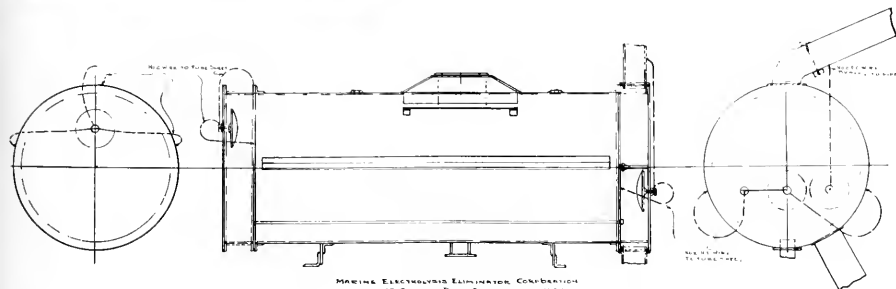


Diagram showing application of the Marine Electrolysis Eliminator to a surface condenser.



P. S. N. steam-ferry Seattle, recently equipped with the boilers from the Peralta. This ferry operates between Seattle and Bremerton.

are being put to severe test. The first installation was a three-unit layout fitted on the Indianapolis, a husky Great Lakes type packet that was built by Craigs at Toledo and early in her career came around Cape Horn to Puget Sound to take up the clocklike run between Seattle and Tacoma where she ran for twenty years. This vessel was converted in 1933 to a fast automobile and passenger ferry and placed on the Edmonds Port Townsend route where she makes five round voyages per day, or just over nineteen hours running time per day on a closely-timed run. She had a bad run of condenser trouble with twelve tube failures in October of

last year. After the Eliminator set was fitted the tube failures dropped to but eleven in four months. Final tests on this installation will be conducted throughout the summer.

The P.S.N. Ferry Seattle, the deluxe night-boat ferry Iroquois and the Bellingham passenger-freight ship Sol Duc, all Puget Sound Navigation vessels, each have four-unit sets of the Eliminators.

The new Marine Electrolysis Eliminator Corporation of Seattle now controls United States and Great Britain patents, and is headed by Arley Cheadle and William Calvert. Patents have been tentatively issued in Spain, France and Italy with others soon to follow.

Trade Notes

Electrical Business Improving. Election of two new directors, reelection of five directors now serving, and transaction of routine business comprised the forty-eighth annual meeting of stockholders of the Westinghouse Electric and Manufacturing Company, East Pittsburgh, April 11, 1934.

President F. A. Merrick stated: "Orders booked for the first quarter of 1934 totaled approximately \$20,100,000. This compares with \$12,850,000 for the first quarter of 1933, an increase of almost 57 per cent. The outlook for the months immediately ahead is encouraging, and our business trend seems to be again definitely upward. Manufacturing activities for March are higher than for any month since December 1931."

New directors elected were A. L. Humphrey, chairman of the board of Westinghouse Air Brake Company, and H. S. Wherrett, President of the Pittsburgh Plate Glass Company.

A New 400 Ampere Welder. Westinghouse engineers have just recently developed a new 400 ampere direct current welder driven

by a 25 h.p., 230 volt, D.C. motor. This machine is of the unit frame construction incorporating all of the latest features. The polarity is easily reversed by simply turning a simple thumb switch. The machine was designed for either bare or coated electrode service. In working out this design, the heavy service required in steel mill and shipyard production has been kept in mind by the design engineers.

Variable Speed Blower Drive. Roots-Connorsville Blower Corp., Connorsville, Ind., is now supplying some of its blowers, vacuum pumps, and gas pumps connected through a variable speed drive to a constant speed motor. It is pointed out by the manufacturers that, where variations in the volume are required, a unit of this type offers many advantages.

In the rotary positive type of machine, the power consumption varies in almost direct proportion to the volume and the pressure being delivered; thus the use of a variable speed arrangement permits this economy to be carried through the entire operating range. Savings of this kind, coupled with

the convenience afforded by flexibility as to volume and pressure, account for the growing use of this type of drive.

Variable speed drives have also been used in connection with cycloidal rotary pumps, which are built for heavy duty service, including the handling of viscous liquids, or for producing vacuums up to 26 inch Hg. for handling vapor and liquid together.

Active Business in Galley Ranges.—The Ingle Manufacturing Company of San Diego, California, makers of the Ingle Diesel Oil Burning Galley Range, report a steadily growing marine trade. The ranges have become practically standard equipment on vessels of the United States Navy and Army, the Coast Guard, the Lighthouse Service, the United States Engineers, and the United States Coast and Geodetic Service.

A recent check-up of Ingle galley range installations on commercial craft includes upwards of 70 fishing vessels, 12 towboats, 10 yachts, and 9 miscellaneous craft.

For vessels of the U. S. Navy and the U. S. Coast Guard now under construction, Ingle is supplying ranges to Bethlehem Shipbuilding Co., Manitowoc Shipbuilding Corporation, Marietta Manufacturing Company, New York Shipbuilding Company, Pusey and Jones Corporation, Defoe Boat and Motor Works, and Lake Union Dry Dock and Machine Works. This includes a geographic spread from Boston, Mass. to Seattle, Wash.

Coast Guard Buys Steering Gear. Orders have been received by the Sperry Gyroscope Co., Inc., Brooklyn, New York, for 13 Electro-Mechanical Steering Systems for the 165-foot patrol boats and harbor cutters now under construction for the United States Coast Guard in Seattle, Washington, Manitowoc, Wisconsin, Point Pleasant, West Virginia, Charleston Navy Yard, and Portsmouth Navy Yard.

Selection of this type of steering gear was based largely upon the excellent performance given by this equipment in the nine 165-foot patrol boats of the Thetis class, which have been in service for some time. Upon completion of this new building program there will be a total of twenty-two Coast Guard vessels fitted with this improved type of steering equipment.

Pacific Marine Personals

"NAMES ARE NEWS"

BY BERNARD De ROCHIE

NEW PANAMA TRAVEL FILM

Winfield M. Thompson, field agent of Panama Pacific Line, returned to San Francisco on the liner California on April 23. With cameraman George Lyng he spent several weeks in the preparation of the line's new travelog film "By Way of Panama."

More frequent service to the Pacific Northwest ports of call is planned for the four crack Santa ships of the Grace Line, according to Fred L. Doelker at No. 2 Pine Street headquarters.

J. B. Levison, president of Fireman's Fund, is back in San Francisco after a six weeks' tour of the Hawaiian Islands.

After a six months inspection tour of Latin American countries Guy E. Buck, general freight traffic manager of the Grace Line, returned to San Francisco with optimistic views of business conditions. "Definitely on the up-grade" he reports the Spanish Americas, with worth-while building projects increasing the purchasing power of these countries.

Glen Kelly, passenger agent in the San Francisco Matson offices, goes to New York as district passenger agent on May 15.

D. R. Capell has been appointed travelling passenger agent in the Western area, succeeding J. L. Berschens, who goes to Chicago as general agent.

O. O. Britten sailed as purser of the Malolo on her early April voyage out of the Gate. C. E. "Happy" Hansen is the liner's chief officer.



(Above) L. E. Archer, Panama-Pacific official and Fred L. Doelker, Grace Line chief (lower) issue important announcement of new intercoastal services.



GRACE LINE AND PANAMA-PACIFIC ANNOUNCE NEW SCHEDULE

As we go to press an important announcement released jointly by Fred L. Doelker of the Grace Line and L. E. Archer of Panama-Pacific Line brings important news which will interest many of our readers on both coasts.

All of the operating details having been satisfactorily worked out, an agreement has now been concluded between the Panama Pacific Line and the Grace Line which will make available a fast weekly service between New York and West Coast ports via Havana and the Panama Canal, furnished by the great intercoastal fleets of these two companies.

The agreement also provides for the joint use of the International Mercantile Marine Company's Chelsea Piers, 61 and 62, at the foot of West 22nd Street, for all departures from New York.

The sailing of the Panama Pacific liner Pennsylvania from New York on May 5 will inaugurate the new joint service from this terminal under the terms of the agreement. The first Grace liner to sail under the agreement will be the Santa Lucia on May 11.

Thereafter the three turbo-electric sister ships, Virginia, California and Pennsylvania, will alternate in a weekly service with the four new Grace liners, Santa Lucia, Santa Paula, Santa Rosa, and Santa Elena.

All seven liners are specially equipped to carry a large quantity of refrigerator and air cooled cargo as well as general cargo. Freight will be solicited for the joint account of the two lines, although separate offices will be maintained.

The joint operation of the two lines from the Chelsea piers follows an adjustment of fares recently agreed upon by the lines and made effective on April 8.

The new plan for combined, staggered sailings replaces separate schedules whereby both lines operated fortnightly sailings within a day of each other.

● LOS ANGELES NEWS OF THE MONTH

Russell L. Roberts has been named freight traffic representative in the Los Angeles Harbor-Long Beach district for California Steamship Company, for which Lasso is agent, as announced by **C. S. Booth**, in charge of Lasso Matson Oceanic freight department.

E. N. Tormey announced that the Weyerhaeuser Steamship Company's Pacific Coast Direct Line has joined the Pacific Coastwise Conference and will extend their former intercoastal service to include ports of Portland, Seattle, Tacoma, and Everett.

Arthur Cahill, president of Suddlen & Christenson, headquartered in San Francisco, tells us that S & B, will open a new branch in Los Angeles on May 1. **Edwin B. Cahill**, son of the president, will serve on the staff.

H. C. Cantelow, secretary-manager of the Pacific Coastwise Conference and manager of the Los Angeles Steamship Association, conducted a three-day conference in Los Angeles around April 20, in connection with L.A.S.A. affairs. Assistant manager **E. Linn Christopher** is in charge of the L.A. office while **Mr. Cantelow** conducts the duties of the Coastwise Conference at San Francisco headquarters.

The tariff plan proposed by **Clarence Matson**, manager of the harbor and foreign commerce department of the Los Angeles Chamber of Commerce, was discussed by a lively meeting of the Foreign Trade Club on April 19 in the southern city.

Stanley T. Olafson is in charge of details of arrangements for big Foreign Trade Week plans, May 14 to 22, in Los Angeles. The slogan: "World Trade Brings World Prosperity". One of the features will be an exhibit of products of the commerce moving through the harbor.

L.A. Port officials, including **E. J. Amar, Jr.**, president of the Harbor Commission; **Gerald C. FitzGerald**, vice-president; **Fred G. Gamble**, commissioner; and chief engineer **E. C. Earle**, visited the Boulder Dam project during the month, making a 900-mile tour of inspection.

Walter Measday has been named district manager of the Bureau of Foreign and Domestic Commerce of the U.S. Department of Commerce, Los Angeles zone.

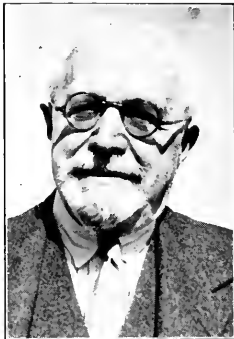
Saturday April 21, saw the two magnificent liners, *Lurline* and *Mariposa*, berthed at adjoining docks . . . first time the two queens have met in the L.A. harbor.

● McCormick Manager

Hillman Lueddeman has been elevated from position of manager of McCormick Steamship Company to northwestern manager of the company's lumber interests as well. He will have direct charge of sawmill operations, logging camps, and creosoting plants of Charles R. McCormick Lumber Company.

Mr. Lueddeman joined McCormick in 1921, and has worked up from dock clerk, through freight department positions.

Activity—and plenty of the right kind of optimism prevail in the Seattle district, reports **Charles A. Perkes**, freight traffic manager of Pacific Steamship Lines, who has just recently returned to San Francisco offices of the Admiral Lines, after a five-week survey of the Pacific Northwest.



● VOYAGER

With 106 trans-Atlantic crossings on his record, **Ernest L. Simpson**, 81 year old head of the British shipping firm of Simpson, Spence and Young, and who makes his headquarters in New York and London, sailed from San Francisco on the N. Y. K. Line's *Taiyo Maru* on his first trans-Pacific crossing. And if he likes it well enough, he vowed, he would start commuting the Pacific waters to equal his trans-Atlantic mark.

A friend of many years standing, **H. S. Scott**, president of the General Steamship Corporation, was at the ship to get him started and bid **Mr. Simpson** bon voyage.

Mr. Simpson is accompanied by **Harry W. Rinckhoff**, assistant treasurer of the Charles Harris Forbes Corporation. They will spend the summer touring the Far East and then will return to San Francisco.

Dollar Line personnel changes announced early in the month by **H. M. Lorber**, vice-president, includes **A. A. Alexander's** appointment as general agent, replacing **W. T. Dingler**, who resigned.

J. E. Murph has been appointed district freight agent at New York, and **D. F. Brennan** has been appointed general agent at Havana.

Ed. Gardner, general passenger agent for the States Steamship Company, Portland, recently visited San Francisco, where he has a host of friends, having formerly been a district manager of the Dollar Line—later serving the Matson Line in the same capacity.



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● INTEROCEAN PERSONNEL CHANGES

Important personnel changes in the Interocean Steamship Corporation are announced by Erik Krag, vice-president manager.

K. F. Watterworth is advanced from assistant traffic manager to chief traffic manager of the Continental service; a similar promotion coming to Donald Watson, inter-coastal and coastwise service.

Edward S. Clark, formerly with Swayne & Hoyt, will become traffic manager of the United Kingdom service of Interocean.

● Francis R. Dravo Dies. Francis R. Dravo, for many years president of the Dravo Contracting Company, and otherwise prominent in the industrial world, was killed on February 26 in a Pennsylvania train wreck.

Mr. Dravo was born in Pittsburgh in 1866 and resided there and in adjacent Pennsylvania towns all his life. He was educated at Lehigh University, after which, in association with his brothers he developed the Dravo Contracting



Company. Other official positions which he held were chairman of the Dravo Corporation, Vice-President and director of the Keystone Sand and Supply Company, Vice-President of the Steubenville-Weirton Bridge Company and of the Pomeroy-Mason Bridge Company; director of the Dravo-Doyle Company, Dravo Equipment Company; Charleroi Supply Company, Columbia River Sand Company, and Eastern Ohio Sand and Gravel Company.

In addition, he was an active social worker, being interested in many philanthropic organizations near his home.



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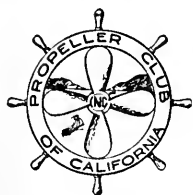
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● Luncheon Meetings

The April 3 meeting was an occasion of which the Propeller Club can well be proud. Guest speaker Roger D. Lapham, president of the American - Hawaiian Steamship Company, is recognized throughout the maritime world as an outstanding authority on American shipping. A fine attendance listened attentively to his statements. Here are excerpts of one of the best addresses we have ever enjoyed:

"Let's call it a subsidy, and let's admit it costs more to build a ship here than abroad. Let's subsidize the shipbuilder if we must—so our American owners will start on the same basis as our principal foreign competitors.

"It is well to remember that maintaining the American flag in foreign trade is a national cause—and not just the American ship owner's problem.

"Experience and history show that direct government operation is most expensive—and most detrimental.

"After all, the American shipowner's main competition is the other important branch of transportation—the railroad. The government's policy toward railroads will largely determine the future and welfare of water transportation.

"I feel very, very confident that the position of the American flag in shipping is going to be maintained."

Charles H. Robertson presided at this meeting, introducing distinguished guests who attended to hear Mr. Lapham's talk.

—P C—

April 17—

Our guest speaker, William J. Quinn, chief of San Francisco's splendid police department, gave an interesting talk, high-lighted with stories of organized crime, gang-

COMING !
The Annual Spring Banquet is in the offing. The committee is planning something

New !
Novel !
Distinctive!!!

FLASH . . . !
As we go to press—the Board of Governors announces the date—May 22—National Maritime Day.

Place: Aboard the Panama - Pacific liner, S. S. Pennsylvania.

ster and racketeering methods in Eastern cities.

It is reassuring to realize that San Francisco is entirely free from these terrific drains on business. The record is unblemished—there is not a single case of a business paying tribute to gangsterism.

Harry T. Haviside, our president, presided over the meeting, which was another successful event in the club's noteworthy calendar.

—P C—

Secretary-Treasurer Stanley E. Allen announces the election of the following new members:

Ray C. Ingram
Capt. A. "Stormy" Pedersen
Carroll F. Reeves
R. Englund
Erick Krag

A hearty welcome into the club's activities is extended to these new Propellers.

—P C—

IN MEMORIAM

The Club mourns the passing of its esteemed member, J. H. Hind.

SPRING GOLF TOURNEY— AND THE WINNERS

Byron "Tote" Haviside and his great committee staged a golf tournament that will go down in the club's records as a big success.

Menlo Country Club, April 10, saw a large turnout of eager Propellers who thoroughly enjoyed this fine course and who were banquetted in the Menlo Clubhouse with good-fellowship prevailing.

Chairman Haviside, and his committee, consisting of John Greany, Chuck Sprawkins, Vernon Showell, Capt. Arthur De Guire, and Louis Siverson, are to be congratulated for upholding the Propeller Club's fine tradition for these golfing events and the 1934 Spring Tournament will be long remembered!

The players "in the money" were:

Gross H'cup Net

Low Gross
Trev Smith 74

Low Net
J. P. Healey 85—26—59

Flight "A"
T. E. Ensor, winner 80—14—66
W. Empey, runner up 81—15—66

Flight "B"
Bert Anderson, winner 81—16—65
John T. Greany, first runner up 86—18—63

Ray Ingram, second runner up 86—18—63

Flight "C"
A. S. Gunn, winner 90—22—68
Graham Smith, runner up 90—21—69

Flight "D"
H. Paladini, winner 96—27—69
Ralph Meyers, runner up 99—25—74

Haviside Cup, for players with Handicaps of 20 to 30
A. S. Gunn, winner 90—22—68

Guest Flight "A"
Lewis Lapham, first 71—7—64
John Beeler, second 76—12—64

Joseph Baldi, third 76—12—64

Guest Flight "B"
T. B. Soares, winner 86—23—63
W. D. Quevedo, runner up 85—22—63

Highest Score
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Trans Pacific Freight Service

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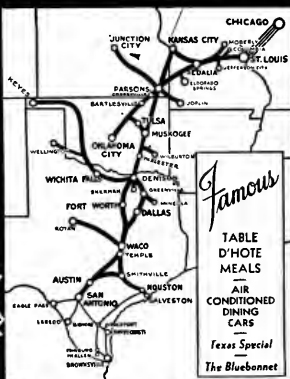
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(Continued from page 160)

books. These books accomplish the two-fold purpose of making contented crews, as well as more intelligent and better citizens. They also do much to bring the public, the shipowners and seafarers into closer relation with each other. The supply of books is maintained by donations from the public. These donations are received throughout the year, but they are especially asked during this Book Week, May 1st to 8th. Assisting the Seamen's Church Institute are the Public Libraries throughout the state, the churches, women's clubs, chambers of commerce, fraternal groups and boy scouts."

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James Davitt,

Chief Officer.

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J. H. Simmons,

Radio Operator.

S.S. President Wilson,

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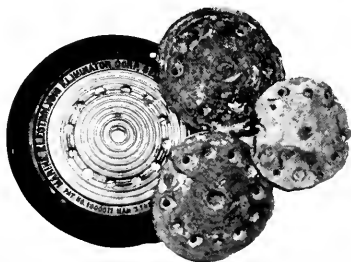
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JUNE 1934



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Pacific Marine Review

The National Magazine of Shipping

VOLUME XXXI

JUNE, 1934

NUMBER 6

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Shipowners' Association
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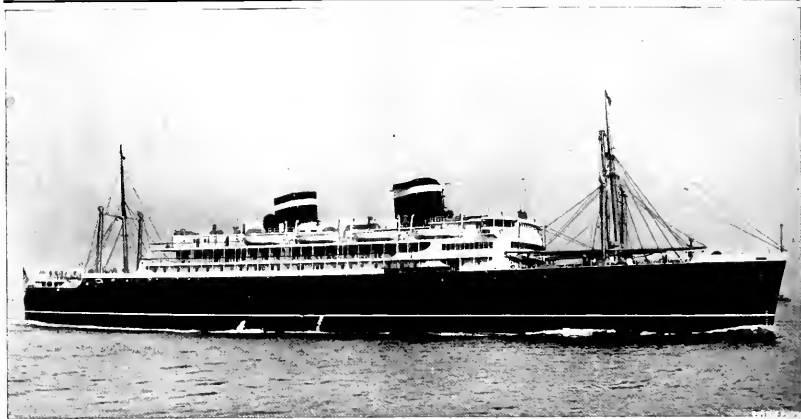
Alexander J. Dickie
Editor
M. J. Saitor
Asst. Editor

Chas. F. A. Mann, Northwestern Representative, 1110 Puget Sound Bank Bldg., Tacoma, Washington.

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Pacific Marine Review

VOLUME XXXI

JUNE, 1934

NUMBER 6

Editorial Comment » » »



The A-B-C of Merchant Marine Problems

IT IS always of great value for an industry to have its problems brought out into the spotlight of open public scrutiny under the guidance of an understanding and sympathetic mind. This service is now being performed for the American Shipping Industry by Henry H. Heimann, who, after four months intensive study of the Shipping Board organization and the relation of the federal government to shipping, has returned to his real job as manager of the National Association of Credit Men. Mr. Heimann, a clear thinker, and a forceful and pleasing speaker, is much in demand for addresses at various functions and is treating the business men of America to some very unusual and very helpful doses of common sense on merchant marine problems.

Here are a few extracts which we have labelled the A-B-C of these problems.

(A) "The foundation of an adequate merchant marine is assurance of a reasonable return on the investment in the shipping business. The return from an investment in the shipping business should be slightly higher than from a bond or security investment, because an investment in business is much more hazardous than a conservative security.

(B) "What subsidy is required to assure this reasonable return is a matter of mechanical determination. Normally it means the placing of the American operator on an equal basis with his foreign competitor as regards his capital and operating costs. No one should quarrel with the foundation stone of a reasonable return requirement.

(C) "If the government assumes, as a first premise, that a reasonable return is due the shipping industry, and if it seeks to create a subsidy that will assure that type of return over a long period of time to the efficient ship operator, then it is only logical that the Government should have some regulatory power over the expenditures. With due regard to the interests of shippers, to insure a fair and reasonable rate with respect to the transportation afforded, with careful survey and appraisal of the rate structure needed by the American ship operators to insure a reasonable return on the capital investment, the regulatory provisions of the merchant marine act should be brought into play. The Shipping Board Bureau of the Department of Commerce has a regulatory division that can contribute greatly toward placing the industry on a rational basis.

"Foolhardy practices such as vicious rate cutting, senseless competition, destructive of the very security of the shipper who ships his goods, extravagant expenditures, unjustifiable capital structures which totter of their own weight—these are some of the practices which ship operators have indulged in. Such a policy may well drive the American flag from the seas and leave American commerce in the control of foreign operators. With respect to some of these practices, the Government can be helpful in ironing out difficulties.

"Sharing of the burden by the Government is done in three ways, all under the heading of subsidy. The first is the payment to cover the differences in ship-building costs between our own and foreign countries. The second is a payment to cover the difference in operating costs between a ship sailing under the American flag and ships flying a foreign flag. The third factor is one which covers certain miscellaneous items. It is this factor that must be most carefully scrutinized, and must be considered, not as a major element, but as one having a certain influence on subsidy determinations only in rare and exceptional cases.

"There are other ways of making it possible to secure an adequate return from ship operation. There is much that the ship operator and the ship builder can do. Indeed, the ship operator and the ship builder must share the major part of this responsibility."

*To sea! To sea! The calm is o'er;
The wanton water leaps the shore;
The anchor heaves; the ship swings free;
The sails swell full. To sea! To sea!*

—T. L. Beddoes.



Edward Davies Tenney.

Pacific Shipping Magnate Passes

On Sunday evening, April 29, in his suite at the Fairmont Hotel, San Francisco, Edward Davies Tenney fell asleep and was gathered to his fathers, peacefully ending a long and very active career as a builder of American Shipping and of the business and industrial structure of the Hawaiian islands.

An able business man of remarkable acumen and keen foresight, combined with high integrity, Tenney began his career as a junior clerk in the Honolulu office of Castle and Cook, on December 8, 1880. In nine years he was enabled to acquire an interest in the firm.

In 1907, Castle and Cook became agents for the Matson Navigation Company, and shortly thereafter, Mr. Tenney was made a Matson director. In association with Captain Matson, he built up the business and fleet in a remarkable way. On the death of Captain Matson in 1917, E. D. Tenney became President of the Matson Navigation Company, a position which he held wisely and well for eleven years. At the time of his death and for some years prior thereto, he held the title Chairman of the Board of Directors.

Mr. Tenney was 75 years old, having been born in Plainsfield, New York, January 26, 1859. On his last birthday, a great celebration was held at the Royal Hawaiian Hotel, Honolulu, where seventy-five of his friends gathered to do him honor.

He was president of the Honolulu Chamber of Commerce, president and trustee of the Hawaiian Sugar Planters Association, member of the Pacific Union Club of San Francisco, and of the Pacific, the Commercial, and the Country Clubs of Honolulu, president of Hawaiian Trust Company, Ltd., vice-president of the Bank of Hawaii, Ltd., director of the Ewa Plantation Company, director of Waialua Agricultural Company,

Ltd., director of Kohala Sugar Company, and director of Theo H. Davies and Company, Ltd.

Mr. Tenney is survived by a son, Vernon Tenney, and a daughter, Wilhelmina Tenney, both of Honolulu.

*They that go down to the sea in ships;
That occupy their business in great waters;
These men see the works of the Lord,
And his wonders in the deep.*

—Psalm CVII.

Beauty in Storm

By Sir William Watson

Many have sung the terrors of Storm;
I will make me a song of its beauty, its graces of hue
and form;

A song of the loveliness gotten of Power,
Born of Rage in her blackest hour,
When never a wave repeats another,
But each is unlike his own twin brother,
Each is himself from base to crown,
Himself alone as he clambers up,
Himself alone as he crashes down;
When the whole sky drinks of the sea's mad cup,
And the ship is thrilled to her quivering core,
But amidst her pitching, amidst her rolling,
Amidst the clangour and boom and roar,
Is a Spirit of Beauty all-controlling!
For here in the thick of the blinding weather
The great waves gather themselves together,
Shake out their creases, compose their folds,
As if each one knew that an eye beholds;
And look! There rises a shape of wonder,
A moving menace, a mount of gloom,
But the moment ere he breaks asunder
His forehead flames into sudden bloom,
A burning rapture of nameless green,
That never on earth nor in heaven was seen,
Never but where the midmost ocean
Greets and embraces the tempest in primal divine
emotion.

And down in a vale of the sea, between
Two roaring hills, is a wide smooth space,
Where the foam that blanches the ocean's face
Is woven in likeness of filmiest lace,
Delicate, intricate, fairy-fine,
Wrought by the master of pure design,
Storm, the matchless artist, and lord of colour and line.

[From "In the Midst of the Seas"]

*I remember the black wharves and the ships,
And the sea-tides tossing free;
And Spanish sailors with bearded lips,
And the beauty and mystery of the ships,
And the magic of the sea.*

—H. W. Longfellow.

Safe for World's Largest Ships

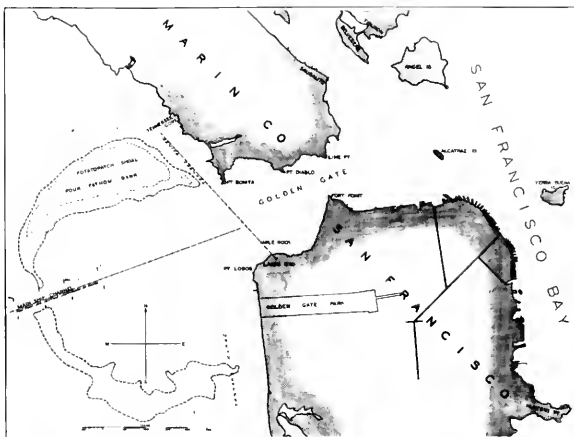
The eminence of San Francisco Bay among the great harbors of the world is greatly enhanced by the impending completion of eight years of dredging operations on the San Francisco Bar, according to announcement made jointly by President P. W. Meherin of the Board of State Harbor Commissioners and Lieutenant Colonel H. A. Finch of the United States Army Engineer's Department in charge of Rivers and Harbors.

This, the deepest entrance channel project in the United States, will create a channel approximately 2,000 feet wide and 50 feet in depth below low water datum. The work is ninety per cent completed, only the edges remaining to be dredged. During the past four years, in which dredging operations have been carried on intensively, the United States Government has expended upward of \$350,000 on the work.

The San Francisco Bar extends in the form of a crescent across the approach to the Golden Gate, its center being approximately six miles west of Land's End. The north end is about one-half mile off shore from Point Bonita and the south end approaches Ocean Beach near Fleishacker Pool.

The natural depth of water over the Bar is about 35 feet and large ships formerly were forced to enter the harbor from the northwest through Bonita Channel, also known as North Channel, which parallels the shore from Tennessee Cove to Point Bonita east of the shoal commonly known as the "Potato Patch". The latter is so-called because the small breakers which roll almost continuously over the shoal resemble a potato patch in full bloom. Since the deepening of the main channel through the Bar ships are enabled to approach the Golden Gate on a straight line from the southwest, the range line on the axis of the channel being through the Fort Point and Alcatraz lighthouses. Only a minimum of dredging will be necessary, according to Chief Engineer Frank G. White of the Harbor Board, to maintain the full width and depth.

The sea-going hopper dredge Culebra of the United States Army Engineer's Department has been used throughout the project. By centrifugal pumps the sand is loaded into the dredge, which has a capacity of 2,000 cubic yards. The water runs off through the scuppers and when the dredge is loaded it proceeds to deep water and releases its cargo, in a matter of a few seconds, by simply opening its hoppers from the bottom.



Diagrammatic chart of the entrance to San Francisco Bay, showing the location of the main ship channel which has now been dredged to a depth of 50 feet over a width of approximately 2000 feet, giving free access to the world's largest ships.

Two Old Timers

A Famous Steamer-Ship: In January, Sydney ship breakers began tearing apart an iron hull for which the keel was laid down at Liverpool in 1839. This vessel, the *Great Britain*, was the first iron hull of any great size, the first screw steamer to cross the Atlantic, and one of the first so called "White Elephants" on the North Atlantic ferry. She was of six-masted, barkentine rig, and had accommodations for 730 passengers, and a crew of 137. After several years of service, losing money for her owners, she was shifted from the Atlantic ferry to the Australia run, and her top hamper changed to 3-masted, square rig style. Later her engines were taken out and as a full-rigged sailing ship she made many voyages to Australia and to the Pacific Coast. She carried troops to the Crimean War, and to the Indian mutiny, and to other wars. Ninety-five years is a long life, even for an iron hull.

Original Mare Island Dock: The original dry dock at Mare Island Navy Yard was a sectional floating dock, 350 feet long, in ten sections, and with a total lifting capacity of 3000 tons. It was built in New York, taken apart and shipped to San Francisco via Cape Horn in 1852. First shipment was on *Ship Empire*, and arrived at San Francisco, August 13, 1852, 128 days from New York, and at Benecia a month later, September 13. The remainder of the dock came out on three ships, *Queen of the East*, 152 days from New York; *California Packet*, 220 days; and *Defiance*, 136 days.

Panama Canal Finances

An Analysis by the Pacific American Steamship Association and the Shipowners' Association of the Pacific Coast

In our consideration of H. R. 7667 we note from the testimony of the Governor of the Panama Canal that during the past some nineteen bills have been presented to Congress for the purpose of amending the law in order to secure a single system of admeasurement for Canal transit revenue purposes, and but three of these bills have ever passed the House of Representatives.

This action, or lack of action, on the part of Congress is significant and shows that the Congress has repeatedly given close consideration to this kind of legislation but has never yet agreed to change the law in accordance with the suggestions made by the Governor of the Canal and his predecessors.

Shipowners and operators of the American Merchant Marine have consistently opposed bills of this kind, not because they are opposed to a single system of measurement as laid down in the Panama Canal Rules but because of opposition to the rates inserted in the bill—\$1 per net ton for loaded vessels and 60c per net ton for vessels in ballast—believing that such rates would unnecessarily increase by approximately \$1,250,000 a year the costs of merchant ships transiting the Canal.

The accounting system of the Canal provides that additions to the capital investment account shall be made from time to time by the inclusion of the costs of new capital additions (such as Madden Dam). Deductions are made of the amounts of withdrawals and retirement of capital assets, such as through the sale of property or the absorption of values of buildings or equipment, through charges for depreciation. Based on these principles, the capital investment at the beginning of the fiscal year 1933 was \$533,106,009.47. Interest at 3 per cent on this amount is \$15,993,180.28, and such interest is considered as a charge for the operating expenses for the year.

● Canal Capital Structure

At the end of the fiscal year 1933 the capital investment was increased by \$6,094,049.76, making a new capital structure of \$539,200,059.23, on which the Governor of the Canal desires a return of 3 per cent. In the 1933 Report of the Canal operations it is shown that the net revenue for this year was \$11,911,209.37, a return of 2.23 per cent on a capitalization of \$533,106,009.47; and this net revenue does not include Panama Rail Road receipts, which amounted to \$784,432.28, making a total of \$12,695,641.65 for the year.

Basing our contention on these figures, we maintain that even in the present period of depression the revenues of the Canal are sufficient to pay all operating expenses and to give a handsome profit, and that they will amortize the entire amount loaned or appropriated by the Government in the 100-year period estimated by the Government to liquidate the entire cost of the

Canal, without increasing the present rate of collections on Panama Canal tolls.

The 3 per cent interest rate on an increasing capital structure is unfair to commercial ships. During 1916 and thereafter bonds to the amount of \$124,701,580 were issued by the United States for the benefit of the Panama Canal. Of this amount \$48,954,180 was in one issue, at 2 per cent; in 1918, another issue of \$25,947,400 at 2 per cent, or a total of \$74,901,580 at 2 per cent, and a third loan of \$49,800,000 at 3 per cent interest. Thus we see that the entire bonded issue was at less than 3 per cent, and this showing determines that the 3 per cent arbitrary rate was not necessary to enable the Government to borrow, nor is an arbitrary rate of 3 per cent necessary to enable the Government to amortize its entire indebtedness during the 100-year period before mentioned.

The capital structure of the Canal is based upon two factors:

- (a) A commercial enterprise;
- (b) National defense.

● Historic Basis

On September 17, 1921, a special committee appointed by the Secretary of War to make a report as to the division between commercial enterprise and national defense reported in part as follows:

(page 6) "The Panama Canal was constructed for two purposes (a) as a commercial enterprise and (b) as a measure of national defense. The first of these purposes can be measured in dollars and cents and should form the measure upon which the commercial operating cost is justified and upon which amount the Government can justly look for an adequate return. The second purpose cannot be measured in money and hence should constitute a sum from which the Government cannot look for any financial return, and which will be a continuous source of expense."

(page 8) "A great part of the cost of the canal is for things that are admittedly military, and in capitalizing the canal for commercial purposes these must of course be omitted. But in addition to them there is a great part of the cost that must be written off, for the canal would not have been constructed as it is purely for commercial purposes, and the question now arises as to how much of the cost of the canal proper ought to be set up as the amount upon which a return ought to be demanded.

"The Panama Canal represents an expenditure of \$485,000,000. The figure thus arrived at includes the actual cost of construction plus a carrying charge, or interest on the investment of approximately 3 per cent up to the official date of opening, July 15, 1920. Add to that the deficit of last year of approximately \$12,000,000 (if interest had been computed), and the canal

**DATA ON ABOLISHING THE DUAL SYSTEM OF DUTYING VESSELS
TO DETERMINE PANAMA CANAL TOLLS**

(From 1930 Annual Report, and other sources)

Net Canal expenses - \$7,343,320.33, includes amortization-depreciation
Grand Total of tolls - \$27,077,407.78
\$535,840.33 - Total cost of Canal, including accrued interest.
\$275,000,000.00 - Commercial valuation of Canal.
\$113,000,000.00 - Charged off to national defense.
\$375,704,619.00 - Proportion of total cost, plus interest to date,
estimated for commercial valuation.
\$16,082,451.78 - Net income from tolls during 1930.

| RATE OF RETURN | NET REVENUE NECESSARY | GROSS TOLL REV- ENUE NECESSARY | RATE OF TOLL NECESSARY |
|-------------------|--------------------------|-----------------------------------|------------------------|
| | | | Laden : Ballast |

I. BASED UPON A COMMERCIAL VALUATION OF \$275,000,000.

| | | | |
|----|-----------------|-----------------|---------------|
| 3% | \$ 8,250,000.00 | \$17,593,320.33 | \$.61 : .543 |
| 4% | 11,000,000.00 | 20,343,320.33 | .71 : .55 |
| 5% | 13,750,000.00 | 23,093,320.33 | .80 : .62 |

**II. BASED UPON AN ESTIMATED COMMERCIAL VALUATION, PLUS INTEREST
TO DATE, OF \$375,704,619.00**

| | | | |
|----|---------------|---------------|-----------|
| 3% | 11,271,138.57 | 20,615,059.50 | .72 : .56 |
| 4% | 15,000,184.76 | 24,352,105.59 | .85 : .65 |
| 5% | 18,750,230.95 | 28,129,151.88 | .98 : .76 |

III. BASED UPON TOTAL COST OF CANAL PLUS INTEREST TO DATE

| | | | |
|----|---------------|---------------|------------|
| 3% | 16,072,315.21 | 25,416,236.62 | .89 : .65 |
| 4% | 21,429,753.62 | 30,773,674.55 | 1.07 : .83 |
| 5% | 26,787,192.02 | 36,131,112.95 | 1.25 : .97 |

today represents an investment of approximately \$500,000,000. This sum, however, does not represent the amount that would have been necessary to build a commercial canal, and it is not the sum upon which the Government should expect a return."

"Recommendations—The Commission doubts very much whether any fraction of the above sum could be arrived at which would represent the correct commercial value, but it is recommended that a careful study be made of this matter and that a definite sum be determined upon as the cost of the canal as a commercial enterprise. The cost of the canal may have to be written down to obtain this figure, and if so, it should be so written down and an arbitrary figure should be estab-

lished as the commercial value of the canal, and thereafter that figure should be used in the operation and official reports as the capital account upon which returns and expenditures should be justified."

Based upon these recommendations, on October 18, 1921, the Secretary of War instructed:

"A careful study shall be made of the cost of the canal, in order to establish, if possible, a capitalization to determine a fair commercial value that should be fixed for the canal and its various allied activities. When this has been arrived at, the actual cost of the canal and its activities be written down to this figure, which should thereafter be used in the operation and official reports as capital account upon which returns and expenditures should be justified. *** There are certain activities, such as sanitation, hospitalization, fire and police protection, and other similar governmental functions, which obviously are not activities from which commercial returns can be expected. *** (p. 49, A.R. 1922)."

As a result of this order, the commercial value of the canal was thus determined as \$246,418,999.81 for transit capital and \$28,760,308.44 for business capital (in 1922) (p. 50, A.R. 1922), or between \$270,000,000 and \$275,000,000, according to fluctuating investments in working capital (see note 3 to Table 19, p. 124, A.R. 1930).

Governor Walker stated in his Annual Report for 1928 (pages 5-6) as follows:

"Investment in the canal is partly commercial, partly for national defense. Arbitrarily the figure of \$275,000,000 has been adopted as representing the investment in a commercial sense (exclusive of the Panama Railroad Co.) and approximately \$115,000,000, including the \$40,000,000 paid to the French, has been charged off as expenditures for national defense. The annual interest on \$275,000,000 at 3 per cent, the rate on most of the Panama Canal bonds, would be \$8,250,000; at 4 per cent it would be \$11,000,000; at 5 per cent, \$13,750,-

**THE GENERAL BALANCE SHEET TO JUNE 30, 1930, SHOWS THE CANAL COST \$386,401,156.26;
DIVIDED COMMERCIAL CAPITAL INVESTMENT, \$273,273,818.51, NATIONAL DEFENSE CAPITAL
INVESTMENT, \$113,127,337.75**

| Interest | Operating | Total Interest | Total Canal | Difference Be- | | |
|-----------------|---------------|----------------|---------------|------------------------------|--------------------|------|
| 3 Per Cent | Expenses | and Operating | Revenues | etween Interest | Capital | Year |
| | Table 20 | Expenses | Table 20 | Expenses and | Liability | |
| | | | | Revenue | | |
| \$ 8,198,214.65 | 4,123,128.09 | 12,321,342.64 | 4,343,583.69 | - 7,977,958.95 | 281,251,777.46 | 1915 |
| 8,437,553.32 | 6,999,750.15 | 15,437,303.47 | 2,558,542.38 | - 12,878,761.09 | 294,130,538.55 | 1916 |
| 8,923,916.15 | 6,788,047.60 | 15,611,963.75 | 5,808,398.70 | - 9,803,565.05 | 303,934,103.60 | 1917 |
| 9,118,822.10 | 5,920,342.94 | 15,038,356.04 | 6,411,843.28 | - 8,626,522.76 | 312,560,626.36 | 1918 |
| 9,376,818.79 | 6,112,194.77 | 15,489,013.56 | 6,354,106.98 | - 9,134,906.58 | 321,695,532.94 | 1919 |
| 9,650,865.98 | 6,548,272.43 | 16,199,138.41 | 8,935,871.57 | - 7,263,266.84 | 328,958,792.78 | 1920 |
| 9,868,763.99 | 9,328,300.14 | 19,197,064.13 | 12,040,116.70 | - 7,156,947.43 | 337,115,747.21 | 1921 |
| 10,113,472.14 | 7,919,017.63 | 18,032,490.04 | 11,385,592.32 | - 6,646,897.72 | 343,762,644.93 | 1922 |
| 10,312,879.34 | 7,690,777.56 | 18,003,656.90 | 17,691,844.06 | - 311,812,843,444,074,457.77 | 351,777.19 | 1923 |
| 10,322,233.73 | 8,373,905.39 | 18,696,139.12 | 24,681,853.89 | - 5,985,714.77 | 338,088,737.00 | 1924 |
| 10,142,662.11 | 8,116,693.44 | 18,259,355.55 | 21,582,618.16 | - 3,323,262.61 | 334,765,474.39 | 1925 |
| 10,042,964.23 | 7,993,468.47 | 18,036,432.70 | 23,145,136.53 | - 5,108,703.83 | 329,656,770.56 | 1926 |
| 9,889,603.12 | 8,997,715.02 | 18,887,318.14 | 24,608,808.82 | - 5,721,490.68 | 323,935,279.88 | 1927 |
| 9,718,058.40 | 8,951,200.82 | 18,669,259.22 | 27,176,045.68 | - 8,506,786.46 | 315,428,493.42 | 1928 |
| 9,462,854.80 | 9,637,150.71 | 19,100,005.51 | 27,366,925.72 | - 8,266,920.21 | 307,161,573.21 | 1929 |
| 9,214,847.20 | 9,343,920.93 | 18,558,768.13 | 27,426,372.71 | - 8,867,604.58 | 298,293,968.63 | 1930 |
| 8,000,000.00 | 10,143,353.00 | 18,143,353.00 | 24,990,580.34 | - 14,847,237.21 | 251,535,571,809.48 | 1931 |
| 10,082,013.00 | 9,839,211.04 | 19,901,224.04 | 21,034,012.72 | - 11,194,800.88 | 253,108,009.47 | 1932 |
| 15,993,180.28 | 9,155,672.00 | 25,148,852.28 | 19,621,158.61 | - 10,755,500.75 | 253,920,059.23 | 1933 |

Table showing returns from canal operation for each year 1915-1933.

000. However, no interest charge is taken into account, although there is a fixed annual charge of \$350,000 for amortization of canal fixed property having a life of 100 years, and \$640,000 covering depreciation at 2 per cent per annum of property having a life of less than 100 years, which together with interest at 3 per cent per year will provide amortization of the investment or replacement of all items at the end of 100 years. In addition, the expenses include a further charge of approximately \$750,000 per year for depreciation of canal equipment and plants. To June 30, 1928, the operating expenses for the canal proper amounted to approximately \$104,000,000 and the revenues to over \$196,000,000, of which \$193,018,939.71 was for tolls alone. In addition, the operating expenses of certain auxiliary business units amounted to over \$159,500,000 more, against business revenues of \$166,000,000. The excess of total earnings over total expenses at the beginning of the fiscal year 1929 stood at \$98,915,439.82.

"In the above, as stated previously, there is no consideration of interest charge on the investment. At 3 per cent on \$275,000,000 it would have amounted to \$115,500,000 for the 14-year period of canal operation at simple interest and if compounded would be considerably more. Against this the operating earnings, aggregated to date, leave a deficit."

● Change of Policy

This basis, obviously the proper basis, was apparently abandoned by Governor Burgess, who contended for a return and interest on \$535,743,840.33, almost half of which, according to Governor Walker, had been charged off, down at least to \$275,000,000. This position, however, is in contradiction of previous statements made by Governor Burgess. In an article in the Military Engineer in 1929, Governor Burgess stated:

"There is no doubt that the canal is amply paying for itself as an element in the national defense. The shortening, for our naval fleets, of the passage between the oceans unquestionably increases, by 50 or 60 per cent, the defense value of the existing naval units. In other words, reversing the statement, for the United States to obtain, without a canal, the naval power—national safety insurance—equal to that of the present fleets with the canal, would require an increase of the naval force by 50 or 60 per cent, with an increase in annual cost of about 40 per cent. The naval expenditure in the fiscal year 1928 was about \$320,000,000; and it would be fair to evaluate the defense insurance of the canal as at least \$125,000,000 per year. This evaluation, however, should be reduced by the annual cost of the Army and Navy establishments of the Canal Zone, which are there for the purpose of insuring the use of the canal by the United States during war, and its non-use by the enemy. No figures are at hand for the annual cost of these establishments, but this cost is only a small fraction of the above conservative estimate of the defense value of the canal."

If Governor Burgess was correct in his statement quoted above that the fair defense valuation of the canal is at least \$125,000,000 per year, it is obvious that the arbitrary division made in 1922 between the capital investment in the canal for defense purposes and commercial purposes is out of line and that the commercial capital investment was much less than \$275,000,000

and the national defense capital investment was much greater than \$113,000,000. In fact, he has stated that the canal would not have been built solely from commercial considerations. In his article in the Military Engineer in 1929, which is quoted in the Appendix to the Congressional Record of January 7, 1930, page 1264, he stated:

"These facts being known, it seems improbable that the United States would have decided on the construction of the canal solely from commercial considerations. The deciding factor was the value of such canal as an element of the national defense—the facility it would give for the transfer of our war fleets from one ocean to the other."

Colonel Goethals' views went even further than those of Governor Walker and the special commission in advocating a write-off of military value. He said:

"I have always felt that the cost of building the canal should be charged off the books as against the military defenses of the Union and that the tolls should be regulated so as to produce enough money to pay for the operation and maintenance of the canal." (S. Doc. 191, 62d Cong., 2d Sess., p. 7).

● Unreasonable Commercial Charges

If, then, the commercial value of the Canal is estimated at \$275,000,000 and the value estimated for national defense is \$113,000,000, why should commercial ships be required to pay tolls and to secure an interest yield at the rate of 3 per cent on the total capital investment? Surely it was never intended that commercial ships should be charged with that portion of Panama Canal costs that are purely a matter of national defense. You might with equal reason charge commercial ships with the maintenance of forts, guns, and the armed forces that are stationed at the Canal.

Along this same line of reasoning it will be observed that our ships of war, Army and Navy transports, transit the Canal free of Canal tolls. During the last fiscal year 445 public vessels, a daily average of 13.53, transited the Canal. If these vessels had paid tolls, they would have added to the Canal revenues \$747,929.58 for the year. In this connection, it is to be remembered that this practice has been going on ever since the Canal was opened. It will be admitted that each transit entails operating costs to the Canal management; so we see that inasmuch as the greatest revenues come from commercial ships, the cost of transiting Government vessels are paid by commercial ships. To give an idea of the volume of these transits, the following table shows that since 1921 these free tolls would have amounted to \$12,755,735.85.

| | Free transits of Canal | Tolls on these vessels, if assessed |
|------------|------------------------|-------------------------------------|
| 1921 | 426 | \$ 628,423.24 |
| 1922 | 276 | |
| 1923 | 388 | |
| 1924 | 420 | |
| 1925 | 386 | |
| 1926 | 552 | 926,863.04 |
| 1927 | 597 | 1,275,995.25 |
| 1928 | 503 | 935,499.97 |
| 1929 | 616 | 1,079,296.94 |
| 1930 | 600 | 1,179,181.43 |
| 1931 | 568 | 1,157,853.20 |
| 1932 | 473 | 899,851.40 |

1933 445 747,929.58
 Average tolls per year, based on above figures, amount to \$981,210.45.
 Approximate tolls for the years not given amount to \$3,924,841.80.

Based on the amount of tolls for the years given in Annual Reports, estimated tolls on vessels transiting the Canal free of charge for the 13-year period, 1921-1933, amount to approximately \$12,755,735.85.

Was it ever intended that ships of war, Army and Navy transports, should transit the Canal at the expense of commercial vessels? On December 13, 1930, Col. Harry Burgess, then Governor of the Canal, stated before a Senate Commerce Subcommittee:

"I will say that personally I think the naval ships should pay for the reason that the Navy makes use of the canal more freely when it does not pay tolls than it would if they had to pay tolls. And even though it merely was a transfer from one pocket to another I would personally prefer to see the Navy and the Army vessels pay tolls on their transit."

● Canal Zone Maintenance

There is, however, an even larger picture than the free transit of Government vessels, and that is the maintenance of the Canal Zone itself. Reading from the 1933 Annual Report of the Governor of the Panama Canal, we quote:

"Administration of the Panama Canal involves three main elements: (a) The operation and maintenance of the Canal proper, which primarily involves the maintenance of the waterway, the operation of the locks and the control of traffic; (b) the operation of auxiliary business enterprises necessary for shipping and the Canal force, such as coal and fuel-oil plants, storehouses for foodstuffs, ships' chandlery, and other essential supplies, marine and railway repair shops, terminal facilities for the transshipment of cargo and passengers, operation of the Panama Railroad on the Isthmus and the Panama Railroad Steamship Line between New York and the Isthmus, quarters for the working force, and other adjuncts essential to the economical and efficient operation of the Canal; and (c) administration of the government of the Canal Zone, populated by 8,654 civilians, 11,012 Americans in military and naval forces, and 23,186 natives and West Indians, in which administration are embraced education, sanitation, hospital service, police and fire protection, customs, quarantine, immigration services and post offices."

"The immediate administration of these various activities rests with the heads of nine major departments and divisions reporting to the Governor, in whom is centered responsibility and control for the entire organization."

In an examination of the expenditures of the Canal Zone we find that the expenditures for the civil government are largely in excess of the revenues derived from other sources than Panama Canal tolls. Therefore, a large proportion of the expense of maintaining the civil government in the Canal Zone proper is provided by monies received from commercial vessels transiting the Canal.

It is also to be remembered that any additions to

Canal equipment, or any reduction in the interest charges less than three per cent, is added to the capital structure, and upon this increasing capital structure, as before mentioned, the Governor of the Canal expects a three per cent yield.

Is there any good reason why the Government should not bear its proportionate share in maintaining this civil administration and, also, why they should not provide their proportionate share in the item in this capitalization set up for national defense?

Some considerable criticism is directed towards the operators of private vessels to the effect that they should not complain of a slight increase in Panama Canal tolls, and it is stated that if decreases were made the commercial ships would be receiving something in the nature of a subsidy. However, it appears that the boat is very decidedly on the other foot, as commercial ships have been paying very substantial subsidies to the Government since 1914, in order to maintain purely governmental projects not connected with Panama Canal transits.

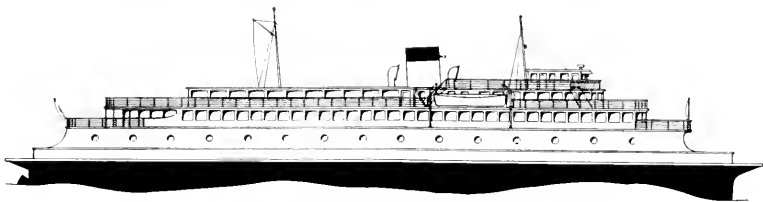
● Panama R. R. S. S. Line

We also call to your attention the complaint that has been made by private steamship operators from time to time of the competition between the Panama Railroad Steamship Line and the private carriers. For years these Panama Railroad Steamship vessels have been carrying freight and passengers at less than commercial rates, and in so doing, have entailed large operation deficits, as the following table will indicate:

| | Deficit | Net Revenue |
|----------------------|----------------|--------------|
| 1921..... | \$ 700,810.22 | \$ |
| 1922..... | 587,332.45 | |
| 1923..... | 164,461.45 | |
| 1924..... | 305,857.49 | |
| 1925..... | 198,568.00 | |
| 1926..... | 285,349.26 | |
| 1927..... | 48,967.77 | |
| 1928..... | | 101,513.40 |
| 1929..... | | 46,856.38 |
| 1930..... | 152,967.82 | |
| 1931..... | 152,967.82 | |
| 1932..... | 297,079.91 | |
| 1933..... | 320,484.65 | |
| | \$3,214,846.84 | \$148,369.78 |
| Gain for two years— | 148,369.78 | |
| Net Loss, 1921-1933— | \$3,066,477.06 | |

Thus we find that since 1921 the Panama Railroad Steamship Line has incurred operating deficits of \$3,066,477.06. Of course, these operating deficits must be paid from some source, and inasmuch as before stated, the largest volume of revenue comes from Panama Canal tolls, therefore, commercial vessels are not only required to bear their proportionate share of these operating deficits but, in addition, are required to unfairly compete with Government ships, greatly to the disadvantage of the commercial carriers.

The commercial carriers have also been criticized from time to time to the effect that the ships are heavily subsidized for construction and reconstruction purposes and for the carrying of the United States mails, and for that reason they should not complain of a slight increase in Panama Canal tolls. However, it is to be



Profile of the converted Ferry Peralta.

Conversion of Ferry Peralta

*3,000 S. H. P. Trunk Piston Marine Diesel Will Replace Turbo-Electric Drive,
Reducing Machinery Weight and Increasing Speed*

Plans for rebuilding of the passenger ferry Peralta, formerly owned by the Key System Transit Company of Oakland, are nearing completion by the Puget Sound Navigation Company of Seattle, Washington.

This ferry was built for the Key System Transit Company in 1927 as a passenger ferry to be used between Oakland and San Francisco. In the fire which destroyed the Key System's Oakland Mole, this ferry was in one of the slips, but on account of the boilers being cold, it could not be moved and the boat burned to the main deck.

The boat had been built as a double ended ferry with propellers driven by independent D.C. electric motors. The turbo-electric generator unit was of a capacity to supply the necessary power for the 2600 S.H.P. on the propelling shaft for the two hours on the duty cycle, and for 2250 S.H.P. on the propelling shaft for continuous duty. In regular service this boat was operated at about 1500 S.H.P. on the propelling shaft.

During the speed trials a maximum speed of 15.15 knots was obtained.

The hull of this ferry and most of the machinery did

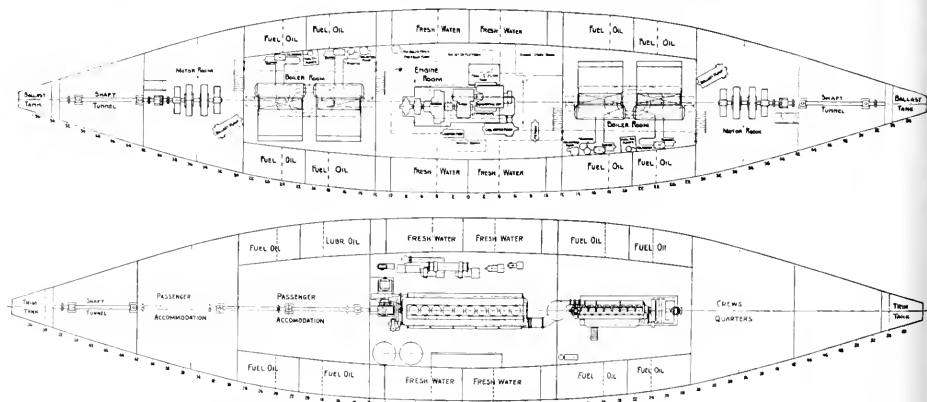
not suffer any damage at all, and was purchased by the Puget Sound Navigation Company to be rebuilt into a single-ended vehicle and passenger ferry.

The management of the Puget Sound Navigation Company, being energetic and far-sighted, are not only interested in additional tonnage, but in faster ships. They know that modern transportation demands faster and more frequent service, and also that with proper engineering such can be obtained and increases in operating economies effected.

For this boat a service speed of 17½ knots was desired.

To obtain this it was necessary to increase not only the shaft horsepower, but also to decrease displacement tonnage.

Based on their experience with the 2200 S.H.P. motor ferry Chippewa, which has been in service for twenty-three months without missing a day, and with a record of more than 10,000 hours of operating and over 160,000 miles travel and in excess of 90,000 engine responses without fail, they selected a 3,000 B.H.P. Busch-Sulzer 10-cylinder single-acting unit of the same type as the Chippewa's engine.



Hold plans of Ferry Peralta. Upper—with double end steam turbo-electric drive. Lower—with direct diesel single end drive.

Plans call for an entirely new superstructure arrangement with an automobile capacity of 110 cars on main deck and a passenger seating capacity of 1500 on the upper deck.

The beam over all will be reduced from 70 feet to 56 ft. 6 in., which will still allow for three lanes of cars on either side of engine room casing.

A careful study was made with regard to power plant equipment and arrangements, and consideration was given to the original turbo-electric double ended drive, turbo-electric single-ended drive, Diesel electric single and double-ended drive, and Diesel direct single-ended drive.

Diesel direct drive was chosen because it was found to make the desired speed increase possible and give the highest possible operating economies.

It also resulted in the simplest possible machinery installation.

As can be seen from the tabulation of machinery weights, given below, the 3,000 S.H.P. Busch-Sulzer trunk piston engine reduces the weights 36 per cent and at the same time a 33 per cent power increase is effected.

● Comparison of Machinery Weights

(a) Steam electric double-ended drive 2250 S.H.P. continuous with 200 K.W. auxiliary turbo generator unit:

| | Pounds |
|--|---------|
| 4 Boilers (dry) | 394,000 |
| 1 Main turbo generator unit complete | 112,150 |
| 1 Aux. turbo generator unit complete | 16,800 |
| 1 Condenser (dry) | 38,750 |
| Control and switchboard | 18,100 |
| Cables, conduit and wiring | 30,000 |
| Piping, valves, pumps, air ejectors, fuel oil heaters, feed water heaters, etc. | 45,000 |
| 2 Double armature propelling motors | 181,600 |
| 2 Propellers, shafting and bearings | 45,000 |
| Normal fuel ($\frac{1}{2}$ bunker capacity) | 255,000 |
| Normal fresh water ($\frac{1}{2}$ bunker cap.) | 172,000 |

Total weight, including normal fuel and water, ready for service

Machinery weight, excluding fuel and water

Total weight per propeller S.H.P. ready for service

Weight per propeller shaft horsepower, excluding fuel and water

In addition to above, two trim tanks of 60 tons capacity are provided at each end of boat, which are filled to secure proper trim of boat in accordance to direction of operation.

(b) Diesel direct drive, single ended 3000 S.H.P. continuous with 400 K.W. auxiliary generator unit (all fresh water cooling):

| | |
|--|---------|
| 1 Propelling unit with standard equipment, blower with motor | 253,000 |
| 1 Propeller, shafting and bearings | 40,000 |
| 2 Starting air tanks | 48,000 |
| Oil and water cooler | 24,000 |
| Pumps and motors, etc. | 63,500 |
| Piping, filters, strainers | 20,000 |
| 1 Combination exhaust and oil fired boiler | 16,000 |
| 1 Aux. Diesel generator unit, 400 K.W. with sub-base | 116,500 |

| | |
|---|---------|
| Platforms and stairs | 3,000 |
| Switchboard, wiring, transformers | 7,500 |
| Fuel oil (one week supply) | 150,000 |
| Fresh water | 110,000 |

Total weight ready for service

Machinery weight, excluding fuel and water

Weight per propeller S.H.P. ready for service

Weight per propeller S.H.P. excluding fuel and water

Saving in weight, Diesel direct drive over turbo-electric double-ended drive, ready for service

Saving in weight, diesel direct drive over turbo-electric single-ended drive, ready for service

This investigation into marine power plant equipment with the turbo-electric equipment already in the boat showed to a very remarkable degree the development in recent years of Diesel and steam machinery.

The development of Diesel machinery was not only along the line of better fuel economy but to a very high degree towards simplification of design and construction, and greatly reduced first cost; while the demand for higher economies in steam brought about a great amount of complication and increase of equipment and resulting higher first cost.

It is also apparent that the development in Diesel equipment has led to less sensitiveness, while steam equipment with its increased pressures and temperatures has become far more sensitive and demands much closer attention than formerly.

Another important advantage that Diesel direct drive offered was increased passenger accommodation. With this method of drive, one boiler and one motor room become available for passenger accommodations, and the other motor room for crew's quarters.

This again results in higher over-all economy for the boat.

Additional details obtained from Seattle since the above was written show that the reconstruction and installation work on the Peralta will be undertaken by the Lake Washington Shipyards, the total cost, including diesel engines, approximating \$600,000.00. She will go on the regular run early in 1935.

The exhaust heat boiler into which the main and auxiliary engines will exhaust is to be of the tubular type, five feet diameter, and sixteen feet high; and will be built by the Commercial Boiler Works, Seattle. It will contain a built-in spark arrester.

Passenger accommodations will be luxuriously outfitted with rubber tile floor covering, highest grade Douglas fir, and mahogany trim panels, modern electric light fixtures, large low plate glass observation windows, and wide promenade deck spaces. The observation lounge forward will be furnished with comfortable davenports, over-stuffed chairs, writing desks, and all the appurtenances of a first-class hotel lobby. Steam heat and forced draft ventilation installed in all passenger spaces will insure comfort winter and summer. A well-equipped dining saloon on the top deck will be much appreciated by both tourists and commuters.

In short, the Peralta bids fair to be one of the largest, finest, and fastest passenger automobile ferries in the world.

The General Shipping Code

Can It Be Developed to Create an American Board of Trade for the Co-Ordination of American Shipping and Commerce?

By Arthur M. Tode,
President, Propeller Club, U.S.A.

In the controversy over the stabilization and other features of the Shipping Code, there seems to have been overlooked one important provision—a section which holds unlimited potentialities and possibilities for the advancement of shipping and commercial interests individually and as a whole. This is Article XI, which reads as follows:

"Section 1. A General Shipping Council, composed of three members, shall be appointed by the President from among representatives of Members of the Industry. They shall hold office at the will of the President.

"Section 2. Any Member of the Council may sit with and participate in (without vote) the meetings and deliberations of the Members of the Division and Subdivisions and their respective Code Authorities. It shall be the general duty of the Council to observe the operation of the Codes and to act in an advisory capacity to the industry and to the administrator."

In these provisions is the nucleus of an opportunity holding great possibilities for the marine industry. The American marine industry—and in this I include foreign flag as well as American flag carriers, shippers as well as vessel owners, stevedores, marine insurance interests, licensed personnel and crews, has been notorious for its lack of organization. True, the industry is plentifully supplied with associations, organizations and committees. Without detailing, a recent compilation lists more than forty such associations composed of shipowners, harbor craft operators, shipbuilders and repairers, licensed officers, naval architects and the like, without taking into consideration such bodies as Maritime Exchanges in various ports or the many associations in the foreign commerce and traffic groups.

But a lack of co-operation and co-ordination between these various associations has been the rule rather than the exception. Individual interests and perhaps personal ambitions and jealousies have in many cases acted to defeat the very purposes for which these associations were founded. An example of this is found in the attitude of Congress toward representatives of the industry. Not so long ago a prominent United States Senator speaking to a group of shipowners desiring legislation, but by no means of one opinion concerning their wants, told the group in words to this effect: "Go home and decide among yourselves what you really want us to do. When you have agreed come back to Washington and if your request is in any way reasonable we'll do everything in our power to grant it." The record does not show that this particular group ever returned on this particular project; they just couldn't agree among themselves.

● Lack of Coordination

Similarly, the national government, in matters relating to the shipping industry, is far from being compact and organized for efficient, effective service to the industry. One or more bureaus and divisions dealing with some phase of maritime activity are to be found in almost every department of the federal government. To cite a few, there is the Department of Commerce with the Bureau of Navigation and Steamboat Inspection, the Shipping Commissioners, the Bureau of Light-houses, the Bureau of Foreign and Domestic Commerce, as well as the Shipping Board Bureau with its various divisions of Regulation, Traffic, Finance, Research, Operations, Insurance, and the Merchant Fleet Corporation. Furthermore, there is the Interstate Commerce Commission; the Post Office Department which administers the ocean mail contracts; the Treasury Department with the Coast Guard, Public Health Service and Customs Service; the Navy Department with its transport service, the War Department with the Panama Railroad Steamship Company, the Inland Waterways Corporation, the United States Army Engineer Corps and the Army Transport Service. The Department of Labor enters the picture with employees' compensation commission and labor regulation. The Reconstruction Finance Corporation has a part, in that it has loaned funds for certain projects of a maritime nature. The State Department must also be considered, for unless I am mistaken in my surmise that department is responsible in some measure for this meeting today. Undoubtedly there are other bureaus and divisions which I have not included but I will complete my list with the National Recovery Administration which has certainly given the shipping industry considerable food for thought the past year and is now definitely included in every shipowner's calculations.

Surely, if the marine industry itself is suffering from lack of organization and co-ordination, the federal government has not set an example worthy of emulation. The fault, if we may so call it, lies in the latter case because of the fact that we are a nation which makes many laws but seldom repeals any of them. As the need has arisen, we have created instruments, bureaus and boards to enforce or administer laws, without determining whether the particular duties involved could not well be assigned to some branch of the government already in existence.

Reverting to Section XI of the proposed Code, it appears that this clause should be amplified and strengthened, extending the duties of the General Shipping Council—and enlarging the Council itself—far beyond the scope of merely observing the operation of the

Codes and acting in an advisory capacity to the industry and to the administrator.

● Code Will Organize

The adoption of the General Shipping Code and the creation of code authorities will have the result of organization—not regimentation—for the shipping industry, but only to a limited extent. It would seem that a logical step beyond the organization for code administration is the organization of the industry itself for the purpose of further developing the shipping business through greater co-ordination between the industry's component parts and between the industry and the federal government.

The next logical step suggested is the reorganization of the federal government's many bureaus and boards having to do in one way or another with shipping. In this connection, and I desire to make this perfectly plain, I do not propose or advocate consolidations or mergers of existing bodies. There is a vast difference between the transfer of a government bureau from one federal department to another (such as, for example, the suggested transfer of the Coast Guard to the Navy), and the bringing together in one group or department all bureaus having to do with maritime matters where duties and functions may be co-ordinated, duplication of effort and working at cross purposes eliminated. Call it, if you will, a New Deal in administration of shipping laws and the development of foreign trade.

The study alone of such a reorganization is an undertaking of no small proportions. To accomplish this suggested reorganization will require legislation. The General Shipping Council, provided for in this proposed code, it appears, could be made the instrumentality for this purpose—enlarged as to personnel and duties to such extent as may be necessary to conduct this study and formulate the requisite legislation.

● Pattern from Great Britain

We Americans pride ourselves on our originality. We prefer to think of ourselves as leaders and pioneers in thought and action, but I do not hesitate to advance the thought that the suggested coordination or consolidation of federal government functions be patterned after the structure of the British Board of Trade, which is an integral part of the British government and virtually free from political control or direction.

It is folly to believe that Britain's maritime greatness is accidental. The present situation of the British Merchant Marine and its dominance of the seas for the past century or more is not the result of the geographical position of England and her possession of far-flung dominions overseas. Nor is it that England's inhabitants, because of their country's relatively small area and their consequent nearness to salt water, possess that seamindedness we Americans would like to see inculcated in every corner of our own country. Britain's maritime greatness is the direct result of co-ordination of effort between the government, the shipping interests and British merchants. It is the direct result of planning, not only for the present or the immediate future, but for decades and centuries to come. Even while that nation was in the midst of the World War, when serious doubts concerning the

ultimate outcome of hostilities existed in the minds of her allies, England was making plans for commercial expansion when trade conditions once more returned to normal. The British Board of Trade was the body which made the plans, and when normalcy did return, proceeded to carry them out.

● British Board of Trade

The history of the British Board of Trade is an interesting one, dating back to the early part of the 17th Century, but time does not permit its rehearsal here. From the beginning, the main concerns of the Board have been the advancement of trade, manufacture and navigation, the protection of British trade interests in overseas countries by means of diplomatic representation or commercial treaties, the investigation of complaints by merchants and manufacturers, and the collection of statistical data and other information with regard to trade. It is true that various of these functions are performed in the United States by branches of our own government, yet much of their effectiveness is lost because of the present lack of co-ordination. In Britain this is not the case, for these functions all come under one administration in the British Board of Trade.

Standing at the head of its set-up is the parent stem of the Board—the Commercial Relations and Treaties Department. Among the matters dealt with by this department are commercial questions generally; commercial treaties; foreign and colonial tariff; commercial intelligence; statistical abstracts for the United Kingdom, colonies, foreign countries, and British Empire; shipping and navigation statistics; supervision of monthly trade accounts and annual statement of trade; monthly accounts of trade of foreign countries; dissemination of commercial information; commercial missions to foreign countries; editing and indexing of consular reports on trade; patents, designs, trademarks, etc., etc.

Two committees assist the Board in matters directly affecting the commercial interests of the country, viz., the Commercial Intelligence Committee and the Merchant Shipping Committee. The former is considered the more important, its duties being to advise the Board on matters relating to foreign tariffs and other commercial questions, and as to commercial missions abroad or other means of obtaining and diffusing information for the benefit of British trade. The committee consists of the President of the Board of Trade, four official members, four representatives of other government departments, four colonial representatives and fourteen commercial representatives.

In 1917, while in the midst of the World War, a Department of Overseas Trade was created, with delegated power not only to carry on the work of collecting and disseminating commercial intelligence and assisting traders in England, but also to administer the commercial services abroad, whether within the Empire or in foreign countries. This the administrative control of commercial intelligence and the development of overseas trade were unified in a single departmental organization, while any difficulties arising from the dual control were limited to two officers—the Parliamentary Secretary and the Comptroller General.

The Overseas Trade Department furnishes exporters of British goods with information regarding overseas

markets, the information including such matters as returns of duty on particular articles, foreign competition in markets abroad, openings for trade, public contracts, opportunities for investment, conditions of local trade and credit, and similar matters of interest to British trade.

● Mercantile Marine Act

Previous to 1850, the responsibilities of the State in respect to merchant shipping were scattered through a number of departments and other public authorities. In that year, the Mercantile Marine Act was passed which definitely constituted the Board of Trade as the authority to "undertake general superintendence of matters relating to the British Mercantile Marine." Prior thereto, the various shipping laws had been administered by nine different departments. Although this act was superseded by subsequent acts, its general framework and contents correspond fairly closely to the present organization and classification of administrative duties of the present Mercantile Marine Department of the Board of Trade.

Through the Board of Trade, the relation of the State to merchant shipping may be grouped under the following heads:

- (1) Political and commercial relations, including the fixing and enforcement of the conditions under which a vessel is entitled to fly the British flag and to claim the privileges of a British ship; the conditions and limits subject to which foreign vessels may be permitted to trade to and from British ports; and the protection of British shipping in foreign ports, both as regards trading rights and facilities and the rates of dues and charges.
- (2) Technical control and supervision in the interests of the safety and well-being of passengers and crew, including rules, inspection, and examination destined to insure structural fitness, the competence of masters and officers, minimum provision of safety appliances, air space, food and medical stores, and to prevent overloading and undermanning.
- (3) Provision or supervision of facilities to assist navigation, e.g., lighthouses and sea-marks, rule of the road, rocket apparatus, wreck services, maintenance of fore-shore rights, etc.
- (4) Protection of the interests of the crew in regard to signing on and off, settlement of disputes, repatriation, advance notes, suppression of "crimping" and similar practices, as well as such matters as the encouragement of employment of apprentices, prevention of desertion, etc.
- (5) Questions affecting the relations between shipowners and their customers or the general public, e.g., the limitation of shipowners' liability in respect of sea losses, and its apportionment in case of collision, maritime liens, liability under bills of lading, immunities of State controlled shipping, shipping combinations, etc.

● Shipping Advisory Committee

To sum up, the present Mercantile Marine Department is an amalgamation of various departments, and under act of 1906, a standing Merchant Shipping Advisory Committee, previously referred to, was appoint-

ed, which contains representatives of all the interests affected by the Merchant Shipping Acts, and advises the Board on the revision of regulations and other matters referred to it. This body is a very important link between the Board and the outside interests.

The Board of Trade's interest in a ship begins in the builder's yard where it is measured by Board of Trade surveyors preparatory to its registration at the customs as a British ship. This applies to all vessels, cargo or passenger, home or foreign trade, large or small, which seek British registry. Not only does the Board's supervision extend over British shipping, but also over the shipping of other nations calling at British ports. Inspections, particularly if the foreign vessels are transporting British subjects, are especially searching and, incidentally, the owners of these ships are assessed an inspection fee, as are the owners of British vessels when and as inspected.

The Mercantile Marine Department of the Board of Trade performs duties which, in the United States are performed by the Bureau of Navigation and Steamboat Inspection, the Shipping Commissioners in the various ports, the Bureau of Lighthouses, the Coast Guard, the Public Health Service, the Shipping Board Bureau, the Army and Navy transport services, and other branches of our federal government. The present staff of the Mercantile Marine Department numbers about 1,900, including central and local technical and clerical officers of all grades, all working under civil service.

Time does not permit more than the mention of other departments of the Board of Trade, whose duties are indicated by their titles. They are: Industries and Manufactures, Patent Office and Industrial Property, Statistics, Companies, Bankruptcy, Solicitor, Finance, Intelligence and Parliamentary, Establishment, Food Council, General, Mines, and Export Credits Guarantee. The last named is set up to aid in the development of new markets by assisting exporters who are not able to finance their own shipments.

The Board of Trade today is a department of the government, the President of which is a member of the British cabinet. The present incumbent is likewise a member of Parliament, though this situation does not always apply. He is appointed by the Privy Council, and is assisted by three Parliamentary Secretaries, one of whom is responsible for the Department of Overseas Trade, while another is solely concerned with the Mines Department. There is also a permanent secretary and a chief economic adviser.

Since the World War, an Advisory Co-ordinating Committee has been established, consisting of the heads of the Statistical Departments of the various offices, with a Treasury chairman to promote greater unity and to prevent overlapping as between different departments.

Closely paralleling the plan of a General Shipping Council under the proposed N.R.A. code for the Shipping Industry is the Board of Trade Advisory Council, which consists of some of the most competent practical authorities of each branch of economic activity, nominated by the President, but in practice always including the chairmen for the time being of the great representative organizations of trade, industry and finance, and meets once a month to keep the Board of Trade in

touch with current changes in industry, commerce, shipping, finance and employment. Full minutes of the proceedings of these meetings are taken for the information of the Home and Dominion governments.

● U. S. 50 Years Behind

In conclusion, while it is recognized that the suggestion to effect a realignment of the many bureaus and divisions of our federal government having to do with commerce and shipping will undoubtedly be considered by many as revolutionary, the workability of this plan has already been proved and has been in successful operation for more than half a century by a nation for whom we can hold nothing but the highest regard in the matters of maritime and commercial achievement. It might be said that in the co-ordination of trade and shipping, the United States government is at least fifty years behind that of our outstanding competitor for world commerce.

Ship operators keenly alive to normal business reactions are always interested in the development of foreign trade. Shippers and ship owners alike who have given this matter careful thought agree that the creation of an American Board of Trade is needed and that with such a body functioning, the cost of government in relation to administration of shipping laws would

be reduced, procedure in dealing with the government would be greatly simplified, the Congress would have the decided advantage of a single fountain head of information and advice on shipping and commercial questions, and the cost of ship operation would in no way be affected. Also, the importance of such an agency in the development of our foreign trade, with consequent participation in this transportation by domestic and overseas carriers, must not be lost sight of.

It is obvious that for the success of this plan, the composition and administration of this board be kept free from political dominance or control. Appointments of those composing the governing body should be of such length of time as to overlap any possible changes in political atmosphere in the national administration, while the General Shipping Council should include in its membership the Secretaries of Commerce, Labor, Agriculture, War and Navy, as well as representatives of the various branches of commerce, shipping and other forms of transportation, including vessel operation, shipbuilding, importing and exporting, rail and air transport, insurance and finance.

The first step toward the achievement of these objectives—and more—may well be included in the General Shipping Code.

Postal Contracts or Subsidy

Some Notes on the Results of a Four Months Intensive Study of American Merchant Marine Problems

By H. H. Heimann

In operating an American ship there are certain basic monetary disadvantages, growing out of the fact that the owner as a general rule pays higher wages, serves his crew with better food, and furnishes them with living quarters superior to those furnished by his foreign competitor, on vessels which cost considerably more to build in America. These very conditions, however, while adversely affecting the owner's pocketbook, insure greater humanitarian consideration for American seamen, and for this reason should be looked upon as highly desirable. In fact, they are in general required by law.

But to expect the shipowner, operating in an industry which is essential to the national welfare, and in a field where foreign competition is of the severest kind, to try to build up, at his own expense, the standards of living of Americans who would follow the sea, would be to presuppose that the owner's financial resources are inexhaustible.

Let us assume that American citizens form a corporation for the purpose of operating ships. The first thing they need is the necessary floating equipment. Now a merchant marine can never be developed along sound and permanent lines unless you have the means and facilities at hand with which to build ships in your own country. The shipping industry is an integ-

rated industry, and good shipbuilding companies are just as essential to the shipowner as woollens are to the tailor.

● New Shipbuilding

Our American citizens, who have formed this corporation, decide to have a ship constructed. Their first difficulty arises in trying to get sufficient capital for the construction of the ship, because the shipping business in this country is one which for many years has been in a rather chaotic state. Money does not naturally flow into that line of operation. Even today, after all these years of shipping, there are no adequate American financing facilities for ship operators.

The credit technique of the shipping industry has been sadly neglected for the reason that the fundamental basis of shipping credit in many instances simply does not exist. Credit is based upon at least a reasonable assurance of sound returns upon invested capital over a period of time, and such returns, though they can be found in the shipping industry, are the exception rather than the rule, except where there is an extension of government aid.

As a consequence of the lack of credit facilities, the organizers of the supposed corporation are forced to apply for aid to the federal government, which makes

(Page 177, please)

Performance of Geared Turbine Tankers

*S. S. Virginia Sinclair and S. S. Harry F. Sinclair, Tankers Owned and Operated
by the Sinclair Navigation Company, Show Notable Results in Service*

In 1930 the Sinclair Navigation Company took delivery of two sister tankers from the Fore River plant of the Bethlehem Shipbuilding Corporation, Ltd. These ships, the Virginia Sinclair and the Harry F. Sinclair, have the following general characteristics:

| | |
|---------------------------------|----------------|
| Length | 416.5 feet |
| Beam | 57.1 feet |
| Depth | 31.9 feet |
| Net register | 3796 tons |
| Gross register | 6151 tons |
| Cargo capacity | 8400 tons |
| Designed shaft horsepower | 4500 |
| Designed sea speed | 14 knots |
| Designed propeller speed | 76 revolutions |

The hulls were designed for a particular trade, with the object of minimizing cost of cargo transport for that trade. There are no summer tanks, and double longitudinal bulkheads are fitted throughout the cargo tanks. Masts are fitted with patent self-freeing gas vents which greatly reduce fire and explosion hazards. This is reflected in reduced insurance rates.

The propulsion machinery consists of three Babcock & Wilcox interdeck superheater marine-type water-tube boilers, designed to supply steam at 400 pounds pressure, and at a total temperature of 642 degrees Fahrenheit. This steam operates a De Laval cross compound marine-type turbine, the two turbine stages being each connected through double reduction gearing to the single screw shaft. Thrust is taken on a Kingsbury bearing.

On builders' trial, this installation developed 4500 shaft horsepower at 76 revolutions per minute propeller speed, which drives the hull at a speed of 14.095 knots on 24 foot draft.

On regular operations these ships have been run-

Trial Operation

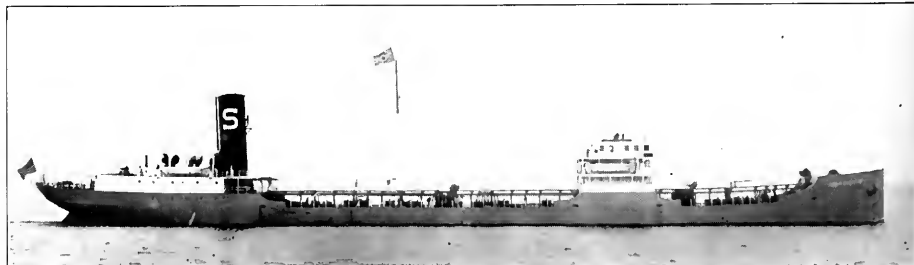
| | |
|--------------------|--------|
| S. H. P. | 4500 |
| Speed, knots | 14.095 |
| R. P. M. | 76 |
| Draft, feet | 24 |

Service Operation Loaded for Six Months Ending June 30, 1932

| | |
|---|----------|
| Avg. steam press., lb. per sq. in. | 350 |
| Avg. steam temp., deg. F. | 685 |
| Avg. superheat, deg. F. | 242 |
| Avg. cargo carried, bbl. | 64,428 |
| Avg. cargo carried, tons | 8053.5 |
| Total machinery weight, wet, tons. | 500 |
| No. of trips | 21 |
| No. of ports visited | 46 |
| Avg. speed, deep loaded (unsplit cargoes), knots | 12.54 |
| Avg. R. P. M. | 67 |
| S. H. P. of auxiliaries (per hour) | 320 |
| Total S. H. P. developed per hour, including auxiliaries | 3500 |
| Avg. miles per trip (light to light) | 698.62 |
| Avg. miles per day | 301 |
| Avg. mileage per round trip | 1786 |
| Avg. number of days per trip | 2.3207 |
| Avg. fuel-oil consumption per day at sea loaded, bbl. | 141 |
| Avg. fuel-oil port consumption per day, bbl. | 83.7 |
| Avg. fuel-oil consumption per total S. H. P., including auxiliaries. | 0.602 |
| No. of men in engine department crew. | 13 |
| Total number of ships' crew. | 36 |
| Cost of fuel oil per bbl. | \$0.77 |
| Cost of fuel oil consumed per mile loaded | \$0.361 |
| Cost of fuel oil consumed per day loaded | \$108.57 |

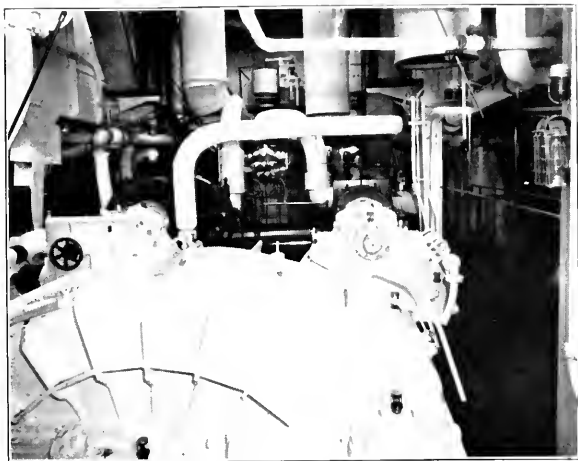
Yearly Costs on Basis of Six Months' Operation

| | |
|---|-------------|
| Cost of lubricating oil per yr. | \$126.57 |
| Cost of engine department crew per yr. | \$16,380.00 |
| Cost of entire ships' crew per yr. | \$41,820.00 |



The tanker Harry F. Sinclair which, with her sister ship, the Virginia Sinclair, built by the Fore River Plant of the Bethlehem Shipbuilding Company, Ltd., for the Sinclair Navigation Co. has been making notable economy records in the petroleum transportation service.

Interior of engine room of the tanker Harry F. Sinclair, showing the De Laval reduction gear casing and the De Laval 4500 shaft horsepower cross compound steam turbine, which takes steam at an average of 382 pounds pressure, 240 degrees F. superheat and produces a continuous shaft horsepower on 0.602 pounds of fuel oil per hour.



ning at an operation cost lower than the lowest competitive freight rate, and lower than any other ships in the Sinclair fleet, which are all reciprocating steam plants. The turbine plants on these two tankers have been especially economical in lubricating oil consumption, using less than one-half the amount required in the reciprocating plants.

A table reproduced herewith shows actual operation results of the S.S. Virginia Sinclair for the first six months of 1932. It will be noted that these results are for short voyages whose average length is only 698 miles. For two longer voyages the same ship shows the following results:

| | |
|--------------------------------------|-------|
| Avg. speed, knots | 13.55 |
| Avg. miles per trip | 1591 |
| Avg. miles per day | 325.2 |
| Avg. fuel-oil consumption per day at | |

| | |
|---|-----------|
| sea, bbl. | 132.4 |
| S. H. P. of auxiliaries per hr. | 325 |
| Total S. H. P. developed per hr. (including auxiliaries) | 3576 |
| Avg. fuel-oil consumption per total S. H. P. (including auxiliaries) | 0.553 |
| Cost of fuel oil per bbl. | \$0.76125 |
| Cost of fuel oil consumed per mile | \$0.31 |
| Cost of fuel-oil consumption per day . . . | \$100.79 |

Total net weight of machinery plant on S. S. Virginia Sinclair is 500 tons net, or 249 pounds per shaft horsepower.

Owners of these tankers report that first classification survey showed hulls and machinery in very satisfactory condition, with a minimum of maintenance required.

Postal Contract or Subsidy ?

(Continued from Page 175)

the necessary credit available for the construction of their ships, at rates of interest which are much more reasonable than could be secured in the open market. Specifications for the ship having been determined, the type, size and speed of the ship having been agreed upon by the government, a contract is finally let for the construction of the ship by an American shipbuilding company. This contract, let us say, calls for a total payment of five million dollars.

This same ship could be constructed in Europe at a cost probably not exceeding three and one-half million dollars. Here, then, is a premium of one and one-half million dollars paid by the newly-formed organization, because a ship is constructed in an American shipyard. This premium is by no means added profit to

the American shipbuilder. It is added purchasing power for American labor, and represents the cost of the American standard of living as compared with the standard of living found in Europe.

An International Business

But the shipping business is an international business. Obviously if an American concern has an initial outlay of one and one-half million dollars more than a European concern, the American concern must either secure higher rates on cargo or larger volume of business in order to earn profits on its expenditure. Yet the seas are open to everyone. Consequently, rates are very competitive.

The volume of business the American can secure must

be comparable to that the foreigner secures unless the American is more ingenious or aggressive in his campaign for cargoes—a conclusion which could not be readily accepted despite the ingenuity of American ship-operators. Under these circumstances, it is very evident that no ships would be built in America unless some arrangements were made to reimburse the American citizen for his additional outlay. This is what the government attempts to do when it makes a subsidy payment. This alone is just one of a number of elements that enter into subsidy payments by the government.

The difference in the cost of construction is definitely arrived at, and that difference is amortized over a period of years, the amortization being reflected in the figures which finally form the total of the subsidy payment.

But subsidies would be a little more easily understood if the difference in ship construction cost was the only item to be taken into consideration. Not only is there a difference in the construction cost, but there is a difference in the operating costs.

We believe we have been in advance of foreign countries in our endeavor to look after the welfare of the great mass of our people. Of this we should be justly proud. Certainly no one would want to revert to lower standards of living. Indeed, our aim and objective at all times has been the improvement and advance of our standard of living rather than to sit idly by and see it retrogress. Various legislative measures have been enacted for the protection of seamen. The seamen's lot, as has been so frequently depicted throughout history, has not been a happy one, and our contribution to the improvement of his life has perhaps been one of the greatest humanitarian movements ever undertaken. We have certain legislation which specifically provides for better treatment of seamen. The outstanding item in this category is of course the La Follette Seamen's Act of March 4, 1925, and the various amendments thereto.

● Operating Costs

Comparing the demands of our seamen with those sailing under foreign flags, it can readily be understood that the operating cost of an American ship is considerably higher, but since it is engaged in international business, and since it has this disadvantage without any possibility of offset through a higher rate-structure or other method of economical operation, the handicap must be removed or no one could operate vessels profitably under the American flag in foreign trade. A very thorough study is made of these differentials in operation costs, and as a result of these studies a compensating figure is definitely arrived at. This figure is added to the differential in construction costs of ships and forms a separate major item which is part of the basis of subsidy payments.

Heretofore this subsidy payment has been constant and the differential in operating costs has been determined as of a given date and then assumed to be held constant during a period of years through which amortization is made. Obviously, in the nature of things, economic changes are speedily brought about, the world never stands still, and there is a shifting of standards of living year by year. Future subsidy pay-

ments will no doubt recognize this fact and will call for more flexible provisions with respect to the cost item.

● Short Term Subsidy

It has been suggested in this respect that perhaps the adjustment of subsidy contracts on a yearly basis—after giving proper weight to the financial figures for a year's operation (which in turn will be used to determine the differential in operating cost)—can be undertaken with equity both to the ship-operator and the government. A survey of a year's results might lead either to a paring down or an increase of subsidy payments, the objective at all times being to place the American operator on a par (assuming reasonably efficient management) with his competitor in the industry who is sailing under a foreign flag.

As we analyze the problem of subsidy payments, we find that the competitive race as between nations, and the nationalistic policies since the war, further complicate the matter. The United States is not alone in its endeavor to build up a merchant marine through government help. Other nations are just as keenly alive to the value of a merchant marine as is this country. I say just as keenly—there are many that contend that we, if anything, are backward in the aid we bestow upon so worthwhile an undertaking.

● Foreign Subsidies

This brings in a new element that must be taken into consideration in the matter of subsidies—namely, competitive foreign subsidies. Assuming that we want to equalize the American operator with his foreign competitor on the basis of the usual differentials that issue out of economic differences in the various countries, we would still have to take into account such assistance as foreign nations are giving their ship operators. The struggle overseas for an adequate development of a merchant marine is intense. Every maritime nation seeks to gain the advantage, realizing that the development of a strong merchant marine is the greatest assurance of the development of foreign trade that has been devised.

Let us take England, for example. Even as this is being written, we learn that England has subsidized one of her companies to the extent of 9,500,000 pounds, or about \$50,000,000. The remarkable part of this grant is that a portion of it, to be exact, 1,500,000 pounds, is working capital. Here, then, is introduced a new principle, namely, the supplying of working capital.

Consider the case of the Italian government: The publicity concerning the achievements of the Rex does not mention the tremendous cost to the Italian government of putting this ship into active trade. The Italian government has subsidized, through participation in joint ownership, to the extent of 331,246,000 lira, or about \$27,000,000. These illustrations are also true of France. Consequently, when we arrive at a subsidy, we must take into account the help extended to the foreign merchant marine. Though we should not embark into a competitive international subsidy plan, it is a factor that must be in our minds even though not definitely in our figures.

● Subsidy a Trade Insurance

From what has been said, it must be evident just what factors enter into a subsidy, and how ridiculous it

is to label a subsidy as "mail pay." Perhaps the most accurate description of it would be "trade insurance," because, in the last analysis, that is what it amounts to.

You cannot have ships flying the American flag without developing trade, and ship-operators keenly alive to normal business reactions are always interested in the development of foreign trade.

The legislation enacted for the development of an American merchant marine has never been fully utilized. Necessary as subsidies are, they are but secondary to the greater helpfulness that could be extended to the American shipping industry through rationalization. The law specifically invests in the Shipping Board Bureau powers with respect to the regulation of rates and trade practices. It is said these powers are now to be vigorously exercised for the first time. It is believed that sound regulatory procedure and administration will do more to develop the industry and make it self-supporting than all of the subsidies.

● Rationalization

At best, a subsidy must be considered merely from a temporary point of view and as being ancillary to the helpfulness that can be extended through reasonable regulation. Admittedly, in these regulations international complications may arise, but in this respect these could be ironed out satisfactorily, and after all, realizing certain conditions, foreign nations would in fairness have to admit that we were entitled to con-

sideration, and if preferential treatment were given our own ships to carry our own cargoes, such policy in the last analysis could scarcely be criticised.

Beyond this, where government financing enters into the adventure the least that could be expected, when exports are financed by the government, is that the business should go forward in American bottoms. We can well look across the seas and study other legislation and pattern our own after it with profit to both the merchant marine and American commerce.

There must be a flexibility about subsidies, and the hope must always be held out that the day may soon approach when these are no longer necessary, for when the American merchant marine has been soundly developed, it will possess an internal strength sufficient to enable it to move ahead under its own power. In the meantime, perhaps the worst thing about our plan is continuing to label these payments as "mail pay."

A sound and sane program for the development of an American merchant marine should issue out of all the chaos that has surrounded previous attempts. We must conserve that which is of value, profit by past errors, and rebuild anew. In this rebuilding at least one thing is certain, and that is that whatever the need of a subsidy payment may be, there should be a strong determination to label it honestly so that the whole nation may know and better understand just why such expenses are incurred in the development of an American merchant marine.

Steamers Angelina and Manuela

First American General Cargo Vessels Built Since 1921 Delivered by Newport News Shipbuilding and Dry Dock Company

The two general cargo ships Angelina and Manuela, which have just been completed at the plant of the Newport News Shipbuilding and Dry Dock Company, for the A. H. Bull Steamship Company are the first general cargo ships to be built in this country since 1921.

These vessels, although classified as freight ships, have accommodations for twelve passengers in six staterooms, and the extent of midship house, together with the straight raked stem and cruiser stern, give them something of the appearance of passenger vessels.

The ships are fine formed for speed and have a suggestion of a bulbous bow, but this is a natural consequence of the raking of the stem, and there is no actual bulbing of the bow lines. To further reduce resistance the rudder is of the stream line type; with fair-water fitted on the forward side of the stern post, meeting and extending the fair-water from the hub of the propeller, and the shell plating is lapped forward and the exposed edges slightly rounded. The form is such as to give remarkably good shape and capacity of holds for a hull of such fineness.

Gibbs and Cox, Naval Architects, No. 1 Broadway, New York City, were employed by the owners as consulting naval architects, and designed the vessels in collaboration with the designing staff of the Newport News Shipbuilding and Dry Dock Company. A representative of Gibbs and Cox, who also acted as owners' representative and resident inspector at the works of the Newport News Shipbuilding and Dry Dock Company, approved the working plans and supervised the construction of the vessels. The vessels were also built to the highest class and under the survey of the American Bureau of Shipping, and built and equipped in all respects to pass the applicable rules of the Steamboat Inspection Service, and U. S. Public Health Service.

The machinery is amidships, with the rather unusual arrangement of the turbines forward of the boilers, and the boilers fitted on top of a deep tank at a height a few feet above the intermediate platform in the engine room, where the working platform is situated. The house for the accommodations is also amidships surrounding the engine and boiler casings.



The S.S. Angelina, first of two coastwise cargo liners recently delivered by the Newport News Shipbuilding and Dry Dock Co.

Principal dimensions of the vessel are as follows:

Length overall 410' 9"
Length between perps. 390' 0"
Beam molded 55' 0"
Depth molded to upper deck at side 30' 6"
Deadweight at 24' 6 $\frac{3}{4}$ " draft to bottom of keel
butt straps 7250 T.T.

Gross tonnage U. S. about 4800 tons.

Net tonnage U. S. about 3000 tons.

Speed in service 13 knots.

The passenger accommodations consist of six large staterooms on the port side of the deck above the bridge deck, with a dining saloon at the after end of the same deck, and a smoking room on the after end of the navigating bridge deck above. The passengers' principal open deck space covered by an awning is a broad expanse of deck for the full width of the ship, over the top of the wheel house and deck officers' rooms. Each passenger stateroom is quite as large as usually found on the largest passenger liners, and has twin beds, a bureau dresser, a lavatory, large wardrobe, and chairs. The two forward rooms have private toilet and shower. The other four rooms have connecting toilet and shower. Each room has two 16" airports. The floor covering is finished magnesite, covered with rugs. The bulkheads are plywood, painted finish, in light cream color. The passageways are painted to match. The doors are of oak, and the airport trim is also of oak.

There are ten officers and a crew of twenty-eight. The principal deck officers' quarters are on the forward end of the navigating bridge deck just aft of the wheel room. The Captain has a large stateroom and office on the starboard side finished and furnished in oak, with a private toilet and shower attached. The engineers' quarters are on the starboard side of the deck below, opposite the passenger staterooms. The Chief Engineer has a large stateroom and office with private toilet and shower attached. The other officers' quarters have plywood bulkheads in oak finish, and furniture to match.

The crew's quarters are on the bridge deck below, and are surrounded with light steel bulkheads and furnished with pipe berths, large metal clothes lockers,

and benches. At the forward end of this deck there is a purser's stateroom and office with private shower and toilet attached, fitted in oak similar to the other officers' quarters.

● Cargo Handling

Freight is carried in five main holds and 'tween decks, the upper deck 'tween decks for the extent of the bridge deck, and the poop. The total bale capacity is about 396,000 cubic feet. The ship is subdivided by seven main transverse watertight bulkheads and meets the requirements of the Safety of Life at Sea Convention for a passenger vessel. One of the unique features of the vessel is that the holds are almost uniform in length and rectangular in shape with all hatches located nearly at the centers of the holds, so that there is no long haul to any hatch. The main cargo hatches for Nos. 2, 3 and 4 holds are 22' x 35', and those for Nos. 1 and 5 holds are 22' x 25'. The main deck 'tween deck is also served by four sliding cargo ports, each 8' 6" long by 8' high. A unique feature of these ports is that the bottoms are flush with the top of the main deck plating, this being accomplished by recessing the main deck in way of the ports. The upper deck 'tween deck space in way of the bridge deck is served by the No. 3 hatch and also by two 4' 6" x 6' cargo doors at the forward end of the bridge house.

The cargo handling arrangements consist of a king post of all welded construction, aft of the No. 1 hatch, with three 50' 5-ton booms and three winches serving that hatch. The foremast of all welded construction, is located between hatches Nos. 2 and 3, with two 50' 10 ton booms and a 50' 30 ton boom serving the No. 2 hatch. These winches are compound geared so as to serve the 30 ton boom. Aft of the foremast are three 50' 5 ton booms and three winches serving the No. 3 hatch. The mainmast of all welded construction, is located between Nos. 4 and 5 hatches, with two 50' 5 ton and one 50' 10 ton boom with three winches serving the No. 4 hatch, and two 50' 5 ton booms with two winches serving the No. 5 hatch. All booms are steel.

There is a steam windlass on the forecastle for handling the anchors, and the windlass is provided with two niggerheads for handling the mooring lines. On the poop there is a steam capstan for handling the mooring lines.

The steering gear is of the right and left hand screw type, driven by horizontal double cylinder steam engine, with hydraulic telemotor control. There are hand steering wheels on the poop deck connected by a clutch to the screw shaft of the steering gear through shafting and gears.

● Propulsion Machinery

The machinery consists of two Babcock and Wilcox water-tube boilers for an operating pressure of 300 pounds per square inch and about 120° F. superheat, arranged for burning oil fuel with forced draft. The turbines are of the Newport News type cross compound with double reduction gears. The propeller is of the solid type, manganese bronze, right handed, four bladed and 17' in diameter. On April 19, 1934, the Angelina was given a sea trial off the Virginia Capes, during which the fuel consumption was measured between the Cape Henry South East Sea Buoy and the False Cape Sea Buoy, a distance of 16½ nautical miles. One run was made in each direction at an average speed of slightly less than 15¼ knots at about 90 R.P.M. The hourly fuel consumption for all purposes was well under the guarantee, which is based on 13 knots average sea speed with the ship fully loaded.

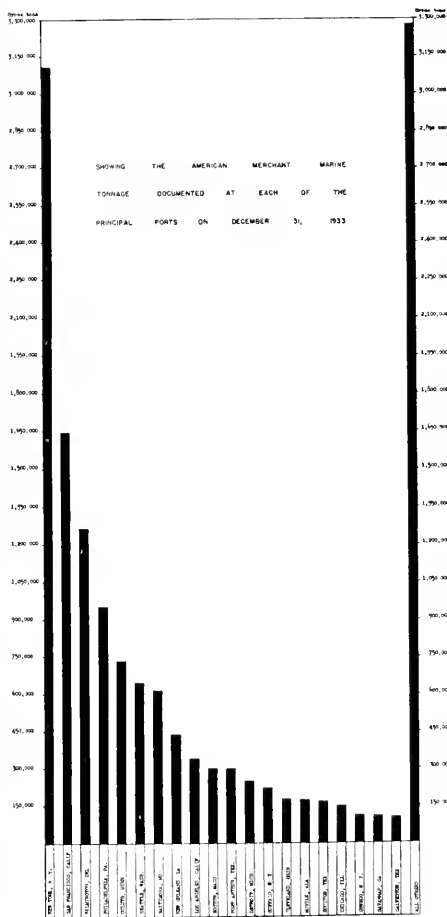
There is an evaporating and distilling plant consisting of a 15 ton evaporator and a 250 gallon per day distiller. There is an Engineers' workshop equipped with an 18" screw cutting engine lathe about 8' between centers, a 20" drill press, a 12" double emery grinder, and a 24" grindstone, all driven from a counter shaft connected to a 5 H. P. electric motor.

The electric generators are located on a platform at the side of the engine room and consist of two steam driven 15 K.W. 120 volt machines. The refrigerating plant is of the ammonia direct expansion type and consists of one one-ton compressor driven by a single acting reciprocating steam engine, one double pipe ammonia condenser, one reciprocating condenser circulating pump and one ammonia receiver. The total capacity of refrigerated space is about 1000 cu. ft.

The passengers' and crew's quarters are heated by means of steam radiators of the cast iron wall type, except in the wheel room where a brass pipe radiator is fitted. The radiators in public rooms are covered with ornamental casings. There is an ice water system with a scuttle butt in the crew's quarters, a bubbler in the engine room and self closing faucet in the pantry and passageway on the bridge house deck. Hot fresh water is supplied to the galley and pantry and all showers and lavatories throughout the vessel. There is a steam smothering system with pipes installed to protect all cargo spaces, the paint room and the lamp room.

The fuel oil is carried in the double bottoms and deep tanks, with a normal capacity of about 500 tons and full capacity of 1015 tons. The boiler feed water is carried in double bottom compartment No. 4 with a capacity of 120 tons. Culinary water is carried in double bottom compartment No. 3 with a capacity of 130 tons and a free standing tank in the bridge 'tween deck with a capacity of 7½ tons.

San Francisco Second in Ship Owning of American Ports



This interesting graph recently published by the U.S. Department of Commerce shows San Francisco second only to New York as a home port for American ships. Note that there are three Pacific Coast ports among the first ten indicating the importance of this section as a marine equipment and supply market.



Marine Equipment

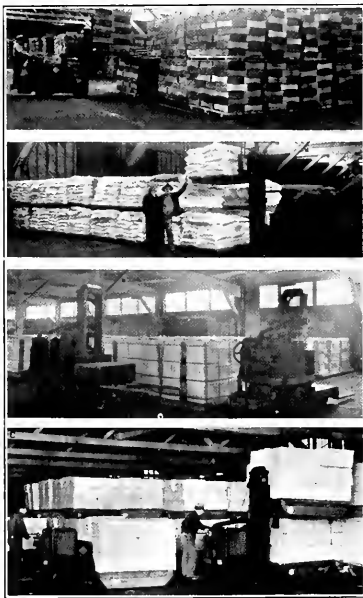
REVISED CARGO HANDLING ~ DRAFTSMAN'S GADGET
MODERN RADIO INSTALLATION ~ WELDED GANTRY CRANE

Revised Cargo Handling

*Method at Pacific Northwest Ports Saving Shippers and Ship Operators
Millions Annually*

The ports of Oregon, Washington, and British Columbia in normal times handle a volume of cargo claimed to be in excess of 100,000 tons per day. Basically this vast tonnage is largely exports of wheat, forest products, and foodstuffs, and imports of world-wide products. To take care of this vast movement of cargo, Seattle and Tacoma have developed to a high degree public terminal systems and private dock properties adapted to the movement of foodstuffs and forest products. Portland and Vancouver, B.C., have also built up large terminals, and both of them have out-distanced their sister ports of Tacoma and Seattle in the handling of wheat. Seattle has a \$12,000,000 system of public terminals. Tacoma has a unique 250-acre \$5,000,000 public terminal system, taking care of all classes of ships and cargo in one single operating unit.

During the past three years, the economic conditions existing in the shipping industry have brought about many ingenious plans to reduce cargo handling costs. Shingles, wheat, flour, pulp, paper, doors, sash—all items moving in large quantities and having a relatively low value per ton—must be handled



Examples of skidload handling by Elwell-Parker trucks at Puget Sound ports: Top to bottom: Piling shingles at the Spokane Street Dock, Seattle; picking up skidloads of flour, American-Hawaiian dock, Seattle; handling bundled paper, Seattle; handling pulp at Tacoma.

with a minimum of cost. This condition has brought out many interesting developments. In the first place, a revised outlook on pier construction has been in evidence. Instead of uniform pier designs, we find a tendency to design each pier especially for the ship type and the commodity to be handled. An example of this is found in the plans

of the Port Commission of Seattle, for a pier system to be built on the old Skinner & Eddy shipyard site that will allow all warehouses to be built on dry ground, of heavy fire-proof concrete construction, all cargo being moved on mechanical dock trucks to a covered, low pier system, radiating at right angles to the shored warehouses, built on a simple crescent piling structure and narrow enough to permit maximum number of ship berths in a given area. The saving in insurance, construction and maintenance costs on this type of terminal design works out to a very satisfactory result from the viewpoint of the Port Commission.

Barlow type freight elevators, electrically or engine driven, on freight boats and on wharves, was another improvement in freight handling methods. A third change is in the remarkable system of freight handling by a string of heavy, flat bed, low slung trailers, with gasoline, rubber-tired dock tractors for motive power, developed on Puget Sound and San Francisco Bay ferry lines for handling freight and express at high speeds on timed ferry runs where layovers are extremely short. The tractor-trailer string, combined with the vertical lift Barlow Elevators for ship and dock use, make it possible for a stevedoring gang to double and triple the hourly rate of cargo movement.

One of the most striking improvements in the application of power driven machines to cargo handling, both on the dock and inside the cargo holds of ocean freighters is the introduction of the Elwell-Parker type trucks for moving skid platform loads of freight, piling on the dock and inside the ship, as well as transporting cargoes from piles on the dock to shipside for handling by the ship's tackle. Seattle and Tacoma have not been slow to adopt this

highly simplified method in the movement of flour, shingles, pulp, paper, barrels, canned foods, doors, baled hay, boxed goods and other commodities. Ships with adequate cargo winches, large hatches, and large side ports, working at piers fitted with movable Barlow type port loaders, and the regular Barlow type elevators, and equipped with the new dock tractors to speed actual handling to and from the ship, make it possible to load or unload cargo with 50 per cent reduction in costs over the clumsy, slow hand labor of stevedore gangs, working with hand trucks.

Mark Colby, well known Seattle engineer, supplies the following simple, concrete examples of economical cargo handling by Elwell-Parker tractors. Mr. Colby is busy placing fleets of these efficient machines with the Pacific Steamship Lines, Luckenbach, Port of Seattle, Puget Sound Freight Lines and many others. His records follow:

1—An Elwell Parker truck, working two hatches on baled pulp, moving 550 tons to shipside on an average haul of 500 feet took sixteen 450 pound bales or 7200 pounds per trip. This job was finished in 4½ hours at a total cost for labor of \$9.95.

2—Forty tons of hides moved by two tractors from cars for a distance of 300 feet and piled on boards for storing at a total cost of \$9.80.

3—An Elwell-Parker Truck hauling 1000 pound casks, eight to a load, for a distance of 200 feet to street truck, delivered forty casks in 25 minutes.

4—On Milwaukee Dock No. 2, Tacoma, operated by Puget Sound Freight Lines, Elwell Parker Electric Lift trucks handle baled pulp, 450 pounds per bale, taking 12 bales or 5400 pounds per load. For the S.S. Katrina Luckenbach, 520 tons was served to four hatches in 2½ hours, or 208 tons per hour. The S.S. Steel Worker on the same day at the same dock was served with 1050 tons in 12 hours on distances of 300 to 400 feet, using two Elwell Parker trucks to serve three hatches. This is an average of 87½ tons per hour.

5—In flour and shingle movement on American-Hawaiian dock, Seattle, using two of the 3-ton fork type cargo trucks, five carloads of flour stacked three platforms high were moved from stack to ship hatch in record time for any Seattle



(Photos by Webster-Stevens, Seattle)

Aerial view of the huge Smith's Cove dock developments at Seattle, with the Lake Washington Canal industrial section and the yards of the Great Northern Railways in the background. In the warehouses of the central pier over 2,000,000 cases of Alaska canned salmon are handled annually.

waterfront movement, and with no damage.

6—Pier 41 has two of the original non-tilting type E.P. trucks. One of the stunts recorded is the piling of three platforms high with baled cotton, six bales per skid, or a total of nearly ten feet with high lift types.

From the above examples it is obvious that the skid platform cargo handling methods combined with Elwell-Parker trucks is an economic success that produces large profits for stevedores, terminals, and steam ship operators. Recorded savings by installations on the Atlantic and Pacific Coasts show an average return on investment of 50 per cent annually. One Seattle installation shows a saving of \$2000 a month.

AN INTERESTING NEW DRAFTSMAN'S GADGET

A new instrument for use on the drawing board to produce perfect cross hatching is manufactured of laminated "Bakelite". This material is adaptable due to its accuracy in punching from sheet stock and for its ability to receive character stamping for identification of the instrument. Its opaque colors, red, green, black and golden brown are pleasing to the eye and mark the instrument for quick distinction as to the corresponding size for the triangles. We believe this is the first appearance of laminated "Bakelite" in the drawing field. The ma-

terial is light in weight although the instrument is strong, durable, flexible and conforms to the thickness of the triangles.

This instrument is of particular interest to naval architects, purchasing agents, designers and draftsmen of marine equipment as it is a modern method to obtain better and quicker results in cross hatching. It is a time saver and eliminates the present guess work method of cross hatching. It is for use with the present T-square and triangles.

The Nelson section liner is easily operated and does away with all eye strain in cross hatching. Illustrations for publication work prepared from line drawings are much improved in appearance by its use. Developed by The Nelson Section Liner to meet the need for a practical section liner for every day cross hatching.

Hundreds of Dollars Saved by Analyzing Chart Records! is the title of an attractive folder put out by the Brown Instrument Company, Philadelphia, illustrating and explaining their numerous recording appliances. Each of the 12 pages is devoted to one device, such as a portable precision potentiometer and water level gauge electric tachometer. The folder, as well as ten catalogs listed therein may be had free of charge by applying to Pacific Marine Review or to the Brown Instrument Company direct.

RADIO INSTALLATION ON S.S. ANGELINA

Mackay Radio has installed its latest model radiotelegraph and radio direction finder equipment on the new S.S. Angelina and S.S. Manuela just completed by the Newport News Shipbuilding and Drydock Company for the A. H. Bull Steamship Company. These vessels are the first ocean-going freight ships built in the United States in the past twelve years. A complete description of these fine cargo liners will be found in this issue of Pacific Marine Review beginning on page 179.

Both the S.S. Angelina and S.S. Manuela are equipped with a type 104-108 combination intermediate and short wave transmitter, which operates in the wavelength band 600 to 800 meters and 17 to 54 meters. Two receivers are furnished which in combination cover a continuously variable wavelength range of 12.5 to 19,000 meters. An auxiliary provision which permits a transmitter to be operated independently of the ship's electric power is also installed.

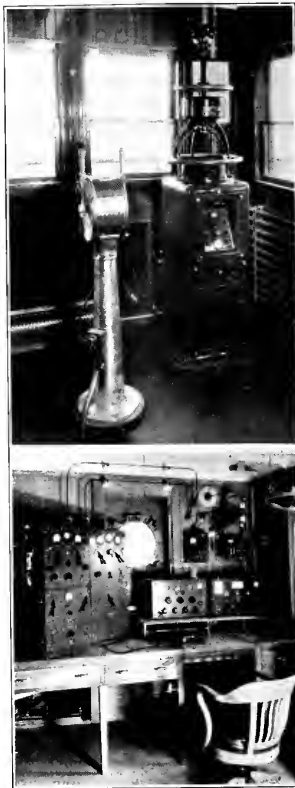
On the trial trip of S.S. Angelina, the operator had no difficulty in maintaining direct communication in daylight with Europe, South America and the Pacific Coast of the United States. This Mackay Radio equipment, while having a long range, is compact in size and arranged so as to be extremely convenient for operation.

In the wheelhouse on the navigating bridge of each steamer is installed a Kolster Radio Direction Finder which is also furnished by Mackay Radio. This instrument will serve to aid the navigation of the vessel during periods of fog and poor visibility.

COMPLETELY WELDED GANTRY CRANE

Construction of an arc welded gantry crane, said to be the first of this type to be built entirely by welding, has been completed by the Shaw-Box Crane and Hoist Company, Inc., Muskegon, Michigan.

Complete, ready for operation, the crane weighs approximately 150 tons and has a lattice boom 96 feet in length. The boom carries a 55-inch lifting magnet or a clam shell dipper. In the vertical position the height of lift is 123 feet.



Upper: Pilot house of the S.S. Angelina, featuring the Kolster radio direction finder. Lower: Radio room on S.S. Angelina showing the combination intermediate and short-wave transmitters and receivers furnished by Mackay radio.

This crane runs on four swivel trucks permitting operation on curved as well as straight tracks. Rails are spaced 20 feet, center to center.

A few bolts were used for erection purposes but the complete structure including the bed plate and frame of the hoist is essentially of arc welded steel construction. Welding was decided upon due to the simplicity of the process, speed of operations and saving in weight.

All welding was done by the shielded arc process using equipment manufactured by The Lincoln Electric Company, Cleveland, Ohio.

The crane is now in operation at

the West Michigan Dock and Market Corporation, Muskegon, Michigan.

TRADE NOTES

A Notable European Service. A milestone in Pacific Coast to Europe shipping was passed on May 15th when the steamship Winnipeg started from San Francisco on the 250th French Line sailing.

Records of Gilbert Macqueron, manager for the French Line on the Pacific Coast, reveal that its Pacific service was inaugurated in December, 1921, by the freighter Honduras. Shortly thereafter, regular monthly service was established, the first regular service between San Francisco, Los Angeles and France, via the Panama Canal. In 1922 the schedule was speeded up to 15 sailings a year. It grew to two sailings a month in 1924.

In 1930 five fast combination vessels, motorships Oregon and Washington, and steamers Winnipeg, Wisconsin and Wyoming, each offering luxurious accommodations for forty passengers and capable of carrying 9,000 tons of cargo, were put into service. This brought the French Line Pacific fleet up to nine vessels and constituted the first direct passenger service between France and the Pacific Coast. Sailings now are made every ten days.

In these twelve years of service, the French Line has been represented by General Steamship Corporation, Ltd. as Pacific Coast freight agents and has carried nearly 3,000,000 tons of cargo, involving over \$30,000,000 in freight between France and the Pacific ports. The line has spent \$6,500,000 for operating expenses and bunkers, and has made purchases on the Pacific Coast for the company's commissaries and hotels in France, America and North Africa.

Managerial Transfer. Mr. Batt L. Spain, who has been for the past twenty-four years with the General Electric Company at the West Lynn works as manager of turbo-blower sales, is now connected with Ingersoll-Rand Company as manager of the Turbo-Blower Department. He will be located at the general offices, 11 Broadway, New York.

The occasion for the transfer of Mr. Spain is the acquisition of the turbo-blower business of General Electric by Ingersoll-Rand Company.



American Shipbuilding

BIG JOB RUMORED FOR PACIFIC COAST

There is a persistent rumor going round to the effect that in the very near future at least one United States Government contract to build a destroyer or a submarine will be allocated to each Pacific Coast yard competent to take care of the job. Such an allocation would be as welcome as the June sunshine, and would be appreciated heartily by Pacific Coast shipbuilders and by thousands of unemployed Pacific Coast shipyard workers. The old proverb says, "All things come to him who waits". We have waited now a long time and we are beginning to hear a sound as of things coming.

ALL-WELDED STEEL BARGES

The construction of four all-welded steel barges, largest of their type ever built on the Pacific Coast, has attracted wide-spread attention in this district among ship and boat builders. Each barge is 134 feet overall length, 36 feet overall width, with a depth of 7 feet 6 inches. The draft when loaded to capacity is 6 feet and the carrying capacity is 650 net tons. Each barge weighs approximately 110 tons.

Steel for these units was supplied by the Pacific Coast Steel Corporation and consisted of about 300 tons of sheared plates, 100 tons of bars and bar sized angles, 15 tons of universal mill plates, and 55 tons of standard structural shapes. The barges were built by the Commercial Iron Works of

Portland, Oregon, for the Western Transportation Company, a subsidiary of the Crown Willamette Paper Company. They are to be used on the Columbia and Willamette rivers for transporting hog fuel and paper chips between the paper company's various plants.

BIDS RECEIVED ON LIGHTHOUSE TENDER

Bids were received recently by the superintendent of lighthouses, Portland, Oregon, for the construction of a twin-screw, diesel-propelled lighthouse tender, to be known as the Rhododendron. The vessel, which will be of all steel construction, will have two six-cylinder diesel engines, each developing 120 horsepower, giving the craft a speed of 11 knots.

Specifications for the vessel were: length overall, 80'6½"; beam molded, 19'; depth at side, 5'11".

Lake Washington Shipyard, Houghton, Washington, was low bidder, in the amount of \$50,750. As yet the contract has not been awarded.

Low bid on the diesel engines was \$13,850, submitted by the Atlas Diesel Engine Co., Oakland, Calif.

SEVERAL SMALL CRAFT BUILDING IN NORTHWEST

Contracts for five wooden vessels for the United States Biological Survey have been awarded Puget Sound yards. The largest of these, the 114-foot motorship, Brown Bear, building at the Winslow Marine Railway and Shipbuilding

Company yards, Winslow, Washington, will be the mother ship for the Survey's Alaska fleet. The bid accepted on this vessel was \$65,899. She will be constructed of heavy Douglas fir, with a sheathing of iron bark, and will have two full decks, with a cargo capacity of 100 tons. The main power plant will consist of two 200-horsepower, 6-cylinder, 4-cycle, direct reversing diesel engines. There will be accommodations for a crew of six and five staterooms for officers and Bureau officials. Contract for her engines was awarded some time ago to the Washington Iron Works, Seattle.

Building in the Schertzer Boat and Machine Works, Seattle, is the 58-foot motorship, Grizzly Bear, which will be powered by a single 90 horsepower diesel engine, also to be supplied by the Washington Iron Works.

The Long Boat Works, Olympia, Washington, is constructing three 50-foot launches of the semi-tunnel type, with shallow draft. They will be equipped with high-speed, 150 horsepower Red Wing engines.

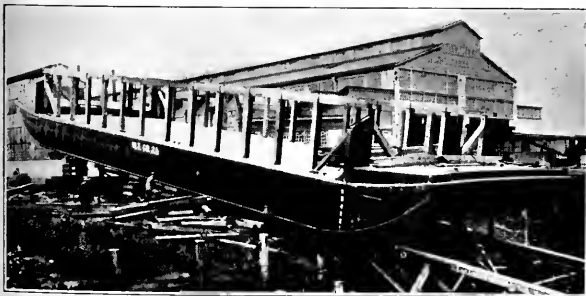
Fremont Boat Market, Seattle, has recently launched two 45-foot wood cruisers equipped with 35-horsepower Fairbanks-Morse diesel engines.

The 73-foot wood fishing craft, Jeannette, recently launched at the Western Boatbuilding Company, Tacoma, Washington, is being completed for the Northwest Herring Company. This vessel is powered by a 135-horsepower Washington diesel engine, and is specially designed for the peculiar requirements of herring fishing.

The Lake Union Dry Dock and Machine Works, Seattle, are now building two of the three steel coast guard cutters for which they have been awarded contract. The total contract was in excess of \$700,000. The vessels are to be furnished with Winton diesels.

CONTRACT AWARDED FOR PONTOONS

A contract for the construction of one hundred pontoons, for the Port of Portland has been awarded the Columbia Steel Company, San (Please turn to Page 189)



One of the four barges of welded steel construction built on the Pacific Coast for the Western Transportation Company.

Progress of Construction

The following Report Covers the Shipbuilding Work in Progress at the Leading Shipyards of the United States as of May 1, 1934

Pacific Coast

BERG SHIPBUILDING CO.

foot of 26th Ave., N. W.
Seattle, Wash.

NEW CONSTRUCTION: Light-house tender *Hemlock* for U.S. Bureau of Lighthouses to be used in Alaska service; a twin screw, steel steamer 174' 6" in length; TE engines, 1000 H.P., WT boilers. Keel was laid April 27, 1933. Launched Jan. 20, 1934. Delivery, no date set.

BETHLEHEM SHIPBUILDING CORPORATION, LTD.

(Union Plant)
San Francisco

DRYDOCK, PAINT, MISCELLANEOUS: S.S. Pres. Cleveland; S.S. Chiriqui; S.S. Manulani; S.S. Lake Galewood; S.S. Point Sur; S.S. West Cape; Tug W. B. Storey; S.S. Maui; S.S. Pres. Adams; S.S. Antigua; S.S. Pres. Coolidge; S.S. Paul Shoup; S.S. West Notus; Stm. Sch. Bandon; S.S. Marian Otis Chandler; S.S. Pres. Wilson; U.S. Dredge Savannah; S.S. Point Arena; S.S. Pres. Taft; S.S. President Hoover; S.S. Talamanca; Pilot Boat Gracie S.; S.S. H. M. Storey; S.S. Lurline.

ENGINE AND MACHINERY REPAIRS: S.S. Pres. Pierce; S.S. H. F. Alexander; S.S. Pres. Lincoln; Stm. Sch. Cascade.

GENERAL ENGINEERING AND DRYDOCK CO.

Foot of Fifth Avenue
Oakland, Calif.

DRYDOCK, PAINT, MISCELLANEOUS: S.S. Trevaylor, S.S. Constance Chandler, Pacific Coast Aggregates Barge, S.S. Manini, S.S. Chirikof.

ENGINE AND MACHINERY REPAIRS: S.S. Richmond, S.S. Mericos H. Whittier, S.S. Cascade, S.S. J. C. Fitzsimmons.

LAKE UNION DRYDOCK & MACHINE WORKS

Seattle, Wash.

NEW CONSTRUCTION: Hull No. 102, *Atalanta*, U.S. Coast Guard patrol boat; keel laid March 23, 1934; estimated launching June 11,

1934; estimated delivery, Sept. 20, 1934.

Hull No. 103, *Ariadne*, U.S. Coast Guard patrol boat; keel laid March 23, 1934, estimated launching, July 1, 1934; estimated delivery, October, 1934.

Hull No. 104, *Cyane*, U.S. Coast Guard patrol boat; estimated keel laying, June 12, 1934; estimated launching August 1, 1934; estimated delivery, Nov. 1, 1934.

THE LOS ANGELES SHIPBUILDING & DRY DOCK CO.

Los Angeles Harbor
San Pedro, Calif.

DRYDOCK, PAINT, MISCELLANEOUS: Tug *David P. Fleming*, S.S. Los Angeles, S.S. Tamaha, Los Angeles Fireboat No. 2, Western Oil Barge No. 1, S.S. Warwick, Whaler *Hawk*, S.S. Utacarbon, Y.T. Volador, S.S. Yale, Y.T. Enchantress, Y.T. Hussar, S.S. Koyei Maru.

THE MOORE DRYDOCK CO.

Oakland, Calif.

DRYDOCK, PAINT, MISCELLANEOUS: Colonel Geo. Armistead; S.S. Missourian; S.S. Emergency Aid; Stern Whl. Str. Crockett; S.S. Silverbelle; S.S. Mount Baker; Kewanee; J. C. Fitzsimmons; Santa Ana; Nelson Traveler; S.S. Nevada; S.S. Bering; S.S. Hyades; S.S. Glacier; Crowley Car Barge No. 3; S. S. Columbian; S.S. Willboro; M.S. Patterson; S.S. Santa Teresa; S.S. Charcas; S.S. Beulah; Barge St. Helena; S.S. Hawaiian; S.S. Santa Cecilia; S.S. Santa Paula; S.S. Delarof; S.S. Brunswick; S.S. Hawaiian Standard; S.S. Maliko; S.S. Carriso.

PRINCE RUPERT DRYDOCK AND SHIPYARD

Prince Rupert, B.C.

DRYDOCK, PAINT, MISCELLANEOUS: C.G.S. Birnie, 4 scows, 5 fishing boats, 26 ship repair jobs not requiring docking, 28 commercial jobs.

THE PUGET SOUND NAVY YARD

Bremerton, Washington

NEW CONSTRUCTION: U.S.S.

Astoria (heavy cruiser No. 34) keel laid September 1, 1930; launched December 16, 1933; LBP 578'; Beam 60'1½"; Loaded Draft, 217'; geared turbine engines; B & W Express boilers; placed in commission, April 28, 1934; U.S.S. *Worden* (Destroyer No. 352), keel laid Dec. 29, 1932; LBP, 334'; Beam 34'2½"; Loaded Draft, 10'10"; geared turbine engines; Yarrow type water-tube boilers; U.S.S. *Cushing* (Destroyer No. 376); LBP, 334'; Beam, 35'½"; Loaded Draft 10'10"; geared turbine engines; express type boilers; and U.S.S. *Perkins* (Destroyer No. 377); LBP 334'; Beam, 35'½"; Loaded Draft, 10'10"; geared turbine engines; express type boilers; building under provisions of National Industrial Recovery Act.

DRYDOCK, PAINT, MISCELLANEOUS: Arkansas, Oklahoma, Arizona, Trenton, Kanawha, Oglala, Quail, Tanager, Kingfisher, Swallow, Sirius, Gannet, Partridge, Mahopac, Tatnuck, Challenge, Wando, Aroostook, Jason, Kearsarge, Patoka, Pawtucket, Prometheus, Pyro, AS-8 (Ex-Savannah).

UNITED STATES NAVY YARD

Mare Island, Calif.

NEW CONSTRUCTION: Smith, U.S. torpedo boat destroyer (DD378); 340 ft. long, 35 knots speed; standard displacement, 1500 tons, estimated completion date, Feb., 1936. Preston, U. S. torpedo boat destroyer (DD-379); 340 ft. long; 35 knots speed; standard displacement, 1500 tons; estimated completion date, May, 1936.

Atlantic, Lakes, Rivers

AMERICAN BRIDGE COMPANY

Pittsburgh, Pa.

NEW CONSTRUCTION: Repairs to 29 coal barges (175'x26' 11") for Carnegie Steel Co.; all delivered. Also, order for repair of 20 barges, four delivered.

BATH IRON WORKS

Bath, Maine

NEW CONSTRUCTION: Hull No. 154, Dewey (DD 349), torpedo boat destroyer for U.S. Navy; keel laid Dec. 16, 1932; estimated launching, June, 1934; estimated delivery, August, 1934.

Hull No. 159, Drayton (DD 366), torpedo boat destroyer, U.S. Navy; keel laid, March 20, 1934; launching, no date set; estimated delivery November, 1935.

Hull No. 160, Lamson (DD 367), torpedo boat destroyer, for U.S. Navy; keel laid, March 20, 1934; launching, no dates set; estimated delivery, January, 1936. Speed loaded for all three of the above, 36½ knots. Standard displacement 1500 tons, turbine engines.

BETHLEHEM SHIPBUILDING CORPORATION Fore River Plant, Quincy, Mass.

NEW CONSTRUCTION: For the U. S. Navy: Torpedo Boat Destroyer Farragut (No. 348), 340 ft. long, 35 knots speed. Launched, March 15, 1934.

Heavy Cruiser CA-39, Quincy, 10,000 tons. Estimated delivery January, 1936.

Heavy Cruiser CA44, Vincennes, 10,000 tons. Estimated delivery January, 1937. Keel laid January 2, 1934.

Four Torpedo Boat Destroyers: DD360, Phelps, keel laid January 2, 1934; estimated delivery, December, 1935; DD361, Clark, keel laid January 2, 1934; estimated delivery February, 1936; DD362, Moffett, keel laid, January 2, 1934; estimated delivery April 1936; DD363, Balch, estimated keel laying, April, 1934; estimated delivery, June, 1936.

CHARLESTON DRYDOCK AND MACHINERY CO.

Charleston, S.C.

NEW CONSTRUCTION: Contract for building a 60-000-gallon gas, all-welded tanker; delivered April 29, 1934; owners not announced. Order for stern-wheel river steamer for Krajewski-Pesant Mfg. Co. to be shipped knocked-down to Venezuela.

COLLINGWOOD SHIPYARDS, LTD.

Collingwood, Ontario.

DRYDOCK, PAINT, MISCELLANEOUS: S. S. Manitoba.

DEFOE BOAT AND MOTOR WORKS

Bay City, Mich.

NEW CONSTRUCTION: U. S.

Coast Guard Cutter No. 151, displacement tonnage 1000; keel laid, November 30, 1933; estimated launching, Aug. 1934; estimated delivery, Sept. 1934 U. S. Coast Guard Cutter No. 152, displacement tonnage 1000; geared turbine drive; B. & W. boilers; 1500 h.p.; keel laid Dec. 15, 1933; estimated launching, Sept., 1934; estimated delivery, Oct. 1934.

THE DRAVO CONTRACTING CO. Engineering Works Dept., Pittsburgh, Pa., and Wilmington, Del.

NEW CONSTRUCTION: Contract No. 872, Hull No. 997, one diesel sternwheel towboat of 91 gross tons; contract No. 983, Hull No. 1151, one steel floating drydock, Bureau of Yards and Docks, Navy Dept., of 4220 gross tons. Contract No. 1019, Hull No. 1169, 240 h.p. single screw diesel towboat; size 90' x 21' x 6' 9"; 153 gross tons. Contract No. W1022, Hull No. 1170 (1) 13,500 barrel welded gasoline barge, Hull size 195'x40'x13'3", Seaboard Shipping Corporation. Contract No. W1023, Hull No. 1171 (1) welded steel bulk oil barge. Hull size 195'x40'x13'3", Seaboard Shipping Corporation. Contract No. W1027; Hulls Nos. 1172-1173 1174-1175-1176 1177—six standard 130'x 30'x7'6" steel S&G barges, 1500 gross tons. This makes a total of eleven hulls under contract, with a total gross tonnage of 7464.

ELECTRIC BOAT CO.

Groton, Conn.

NEW CONSTRUCTION: Hull No. 17, Cuttlefish, fleet submarine, (SS171) for U.S. Navy, keel laid October 7, 1931; launched July, 1933; and estimated delivery, May, 1934; standard displacement, 1125 tons. Also two river boats of about 250 tons, 145 feet long. Amazonas and Loreto, estimated delivery April, 1934. Hull No. 19, fleet submarine, Shark, (SS174); L.B.P. 298'; beam, 25'; standard displacement, 1315 tons; keel laid, October 24, 1933; estimated launching, April, 1935. Hull No. 20, Tarpon (SS175); L.B.P., 298'; beam, 25'; standard displacement, 1315 tons; keel laid, Dec. 22, 1933; estimated launching, February, 1935; possible delivery, November, 1935.

THE FEDERAL SHIPBUILDING AND DRYDOCK COMPANY

Kearny, N.J.

NEW CONSTRUCTION: Two de-

stroyers, DD368 Flusser and DD369 Reid for the U. S. Navy, estimated completion dates—Flusser, Nov., 1935; Reid, February, 1936; Itulls Nos. 127 and 128, Destroyers; Hull No. 129, barge for stock; keel laid, Dec. 13, 1933; L.B.P. 175; beam, 39; loaded draft, 12' 7"; 825 d.w. tons; launched March 2, 1934; delivered March 20, 1934. Hull No. 130, barge Erie, for Gulf Refining Company, L.B.P. 205'; beam 39'; depth 12' 7½"; 825 d.w. tons; keel laid Feb. 21, 1934; launched, April 19, 1934; delivered, May 1, 1934. Also three barges for undisclosed owner; hulls Nos. 131, 132, 133; L.B.P. 205; beams 40', 39' and 39' respectively; depths 12'7½", 14' 1'3" and 14' 1'3" respectively; 825 D.W. tons; 131, keel laid April 13, 1934.

GREAT LAKES ENGINEERING WORKS

River Rouge, Mich.

NEW CONSTRUCTION: Contract to lengthen the SS. Maine 105 feet, 9 inches, making the new length, 353 feet, 4 inches, between perpendiculars. This ship was shortened last year to get through the St. Lawrence River locks. Ship pulled apart, Feb. 12, 1934; completed; delivered, April 21, 1934.

INGALLS IRON WORKS

Birmingham, Ala.

NEW CONSTRUCTION: Hull No. 72, river dredge; keel laid, Nov. 6, 1933; launching, no date set; L.B.P. 140 feet; beam, 49 feet. Hulls Nos. 73 and 74, river pontoons; keels laid Nov. 1933; L.B.P. 140'; beam, 8'. Hull No. 75, Wharfboat; 230'x55'x9'9"; keel laid Jan. 1934; launched, April 6, 1934; estimated delivery, May 15, 1934. Hull No. 82, Oil Barge, keel laid May 8, 1934; L.B.P. 200'; beam 40'; loaded draft, 8'6".

MANITOWOC SHIPBUILDING CO.

Manitowoc, Wis.

NEW CONSTRUCTION: Three U.S. Coast Guard Patrol Boats, Hull Nos. 277 Dione; 278 Electra; and 279 Pandora; L.B.P. 165'; beam 25' 3"; loaded draft, 8' 6"; speed loaded, 18 knots; Diesel engines, 1300 S.H.P.; estimated launching for all three, June 23, 1934.

Hull No. 280, Lighthouse tender, Tamarack, L.B.P. 111'8"; beam 29'; loaded draft, 7'; speed loaded 10½ knots; Diesel electric, 450 S.H.P. No dates set.

THE MARIETTA MANUFACTURING COMPANY

Point Pleasant, W. Va.

Three 165' Patrol Boats for U. S. Coast Guard, Washington, D. C., 25'3" beam, 13'2" depth; will draw approximately 7'; twin-screw type, propelled by two 650 horsepower Winton Diesel engines. Total displacement of each vessel approximately 300 tons; required speed 16 knots—now under construction; estimated delivery dates, Oct. 9, 1934; Oct. 29, 1934; and Nov. 18, 1934 respectively.

Two 132'x35'x10' steel covered cargo barges of 850 tons capacity for stock account under construction.

Two Side Wheel Self-Propelled 34' Pipe Line Dredges of the Dustpan Type. Total contract price \$1,016,500.00. Delivery in 180 and 210 days — Length, molded, 270'0"; length overall, 277'1 1/2"; breadth, molded, 50'0"; breadth overall, 84'8 3/4"; depth, molded, 8'6"; depth midships, 9'3", first keel laid May 2, 1934.

MIDLAND BARGE COMPANY

(Subsidiary of Treadwell Construction Co.)

Midland and Erie, Pa.

NEW CONSTRUCTION: Hulls 248 and 249, two steel Needle Flats for U. S. Engineer's Office, Cincinnati, Ohio. 48 pontoons, 48' x 18' x 2'10" for U. S. Engineers, Memphis, Tenn. Two barges, 40'x18'x3' for U. S. Engineer's Office, Chicago, Ill. Completed and delivered.

One barge 100'x24'x7' for Parsons & Roller Co.

NASHVILLE BRIDGE CO.,

Nashville, Tenn.

NEW CONSTRUCTION: Hull No. 285, Dredge; keel laid February 5 1934; launched March 5, 1934; L.B.P. 90'; beam, 22'; loaded draft, 5'; delivered, Mar. 10, 1934.

Hull No. 286, Snag boat for U. S. Government, keel laid April 1, 1934; estimated launching, June 1, 1934; estimated delivery, November, 1934; L.B.P. 170'; beam 38'; loaded draft 4' 1/2'; 600 I H P. engine; 2 boilers.

Hulls No. 287, 288, 289, three deck barges for stock; 100'x26'x 6' 1/2'.

NEWPORT NEWS SHIPBUILDING & DRYDOCK CO.

90 Broad Street, New York

NEW CONSTRUCTION: H 359 aircraft carrier CV5, Yorktown, for

U. S. Navy estimated keel laying, July 2, 1934; estimated delivery, August, 1936.

H360 aircraft carrier, CV6, Enterprise, for U. S. Navy, estimated keel laying, Nov. 5, 1934; estimated delivery, December, 1936.

Ranger, hull 353, aircraft carrier No. 4 for U. S. Navy, keel laid September 26, 1931, launched February 25, 1933, estimated delivery May 26, 1934.

Hull 357, Angelina, freight vessel for the A. H. Bull Steamship Company, 40 West Street, New York, 410' length, 55' beam, 30'6" depth, geared turbine, delivered April 25, 1934.

Hull 258, Manuela, same as above, delivered May 30, 1934.

THE NEW YORK SHIPBUILDING COMPANY

Camden, N.J.

NEW CONSTRUCTION: Contracts for four destroyers: Hull No. 408, Porter (DD356); Hull No. 409, Selfridge (DD357); Hull No. 410, McDougal (DD358); Hull No. 411, Winslow (DD359); of 1850 tons each; keels laid, Dec. 1933. Also two light cruisers: Hull No. 412, Savannah (CL42), Hull No. 413, Nashville (CL43), of 10,000 tons each for the U. S. Navy Department; estimated delivery dates are as follows: DD356, Porter, Dec., 1935; DD357, Selfridge, Feb., 1936; DD358, McDougal, Apr., 1936; DD359, Winslow, June, 1936; CL42, Savannah, Aug., 1936; CL43, Nashville, Dec., 1936. Oil tanker, No. 414, and oil tanker No. 415, for Standard-Vacuum Transportation Company, 15,000 tons D.W. each; keels laid March 26, 1934; delivery early 1935.

THE PUSEY & JONES CORP.

Wilmington, Del.

NEW CONSTRUCTION: Nos. 56, Algonquin; 57, Comanche; and 58, Mohawk; cruising cutters, building for Treasury Department, U. S. Coast Guard Service; L.B.P., 150'; beams, 36'; loaded draft 13'; speed loaded, 15 miles per hour; turbine engines, 1500 S.H.P.; two watertube boilers, 325 pounds pressure, construction schedule: No. 56, keel laid, January 16, 1934; estimated launching, June 25, 1934; estimated delivery, September 29, 1934; No. 57, keel laid, January 17, 1934; estimated launching, July 25, 1934; estimated delivery, November 2, 1934; No. 58, keel laid, February 1,

1934; estimated launching, September 21, 1934; estimated delivery, December 8, 1934.

SPEDDEN SHIPBUILDING CO.

Baltimore, Md.

NEW CONSTRUCTION: Hull No. 274 (Diesel), Electric, wrought iron hull, Boarding Cutter, for the U. S. Public Health Service, Staten Island N. Y. keel laid March 15, 1934; estimated launching, July 15, 1934; estimated delivery, Dec. 27, 1934; L.B.P. 100'8"; beam, 23'; loaded draft, 10'; speed loaded, 12 knots; two 360 B.H.P. Fairbanks Morse engines. Contract received Jan. 11, 1934.

SUN SHIPBUILDING & DRY DOCK CO.

Chester, Pa.

NEW CONSTRUCTION: Hull No. 150, welded Diesel electric barge for Atlantic Refining Co., L.B.P. 190'; beam, 34'; estimated delivery, June 15, 1934.

UNITED DRYDOCKS, Inc.

Staten Island, N.Y.

NEW CONSTRUCTION: DD364, destroyer Mahan, estimated delivery, Oct. 1935, and DD 365, destroyer Cummings, estimated delivery, Dec., 1935, for U. S. Navy.

No. 822, tanker, keel laid February 1, 1934; estimated launching, May 29, 1934; estimated delivery, July 12, 1934.

Hull No. 823, tanker, keel laid, March 6, 1934, estimated launching, June 20, 1934; estimated delivery, July 31, 1934.

Hull No. 824, keel laid April 3, 1934; estimated launching, Sept. 1, 1934; estimated delivery, October 5, 1934. Data on all three above: L.B.P., 252'; Beam, 40'; Depth, 14'; D.W. tons, 1200; 2 Diesel engines of 375 BHP each, building for Standard-Vacuum Transportation Co.

Hulls No. 825, 826, 827 and 828—barges; the first three for Nielson and Huszagh, keels laid, April 15; estimated launching, May 28, estimated delivery, June 1; 100'x30'x8'; the last for Newton Creek Towing Co.; keel laid, May 1; estimated launching, June 11; estimated delivery, June 15; 280'x40'x12'6" (being built at Crane, 27th St. Plant, Brooklyn, N.Y.)

UNITED STATES NAVY YARD

Boston, Mass.

NEW CONSTRUCTION: De-

(Continued from Page 185)

Francisco, Contract for fabrication was awarded to King Brothers, Portland.

DRAVO WILL BUILD UNION BARGE LINE TOWBOAT

Dravo Contracting Company, Pittsburgh, Pa., has been awarded contract for the construction of a 750-horsepower, twin-screw diesel towboat for the Union Barge Line Corporation.

The craft will have a length of 160 feet, a beam of 34 feet, and a depth of 7.9 feet. Fabrication of the material is now under way in the Dravo shop on Neville Island.

TRUSS-WELD CONTRACT AWARDED UNITED DRY DOCKS

Contract has been awarded to the United Dry Docks, Inc., New York, for the construction of a 13,000-barrel tank barge for the Newton Creek Towing Company, New York. The barge will have a length of 208 feet, beam 30 feet, and depth 12 feet. It will be of the Truss-Weld type, designed to be used for carrying gasoline in harbor and limited coastwise service.

destroyer 1,500 tons for last three above; length overall 341'3", breadth 34'11 1/2" extreme; depth 23'2" at side; tentative delivery dates January, 1935, February, 1936, May, 1936, respectively. **Four U. S. Coast Guard cutters** to be delivered December 1935, February 1936, April 1936, and June 1936, respectively; dimensions: L.B.P., 308'; Beam, 41' 3 3/4"; Loaded draft, 2000.

UNITED STATES NAVY YARD Portsmouth, N. H.

NEW CONSTRUCTION: S.S. 172, Porpoise; keel laid, October 27, 1933; estimated delivery, Feb. 1936. SS 173, Pike, keel laid, Dec. 20, 1933 estimated delivery, May, 1936; Coast Guard Harbor Cutter 62; estimated delivery, Nov. 1934.

PORT NOTE

Sealed bids will be received at U. S. Engineer's Office, 751 South Figueroa Street, Los Angeles, California, until 3 P. M., May 28, 1934, and then opened, for reconstruction, repairs and extension of jetties at entrance to Newport Bay, California. Further information on application.

destroyer DD 370, Case, L.B.P. 334 ft., beam 35 ft.; estimated delivery, Feb., 1936; destroyer DD371, Coningham, L.B.P. 334 ft., beam 35 ft., estimated delivery, May, 1936; destroyer DD354, Monaghan, L.B.P. 334 ft., beam 34 ft. 2 in., keel laid, November 21, 1933; estimated delivery, May, 1935; destroyer DD-351, MacDonough, keel laid May 15, 1933, L.B.P. 334 ft., beam 34 ft. 2 in., estimated delivery, Feb., 1935; for the U.S. Navy.

UNITED STATES NAVY YARD Charleston, S.C.

NEW CONSTRUCTION: U.S.S. Charleston, gunboat (PG 51) for U.S. Navy, building period assigned by Navy Department, Nov. 1, 1933, to Feb. 1, 1936. Work started, Feb. 1, 1934. Also assigned Coast Guard Harbor Cutters 61, 63, and 64; work started Feb. 1, 1934; expect to lay keels about June 1. One Coast Guard Cutter (2000 tons). No dates set.

UNITED STATES NAVY YARD New York, N. Y.

NEW CONSTRUCTION

Hull No. 350, Hull, destroyer; keel laid, March, 1933; no further dates set; L.B.P. 334'; beam, 34'2"; standard displacement, 1500 tons; geared turbine engines; express type boilers.

Hull No. 353, Dale, destroyer, dimensions same as above, no dates set.

Hull No. 41, Brooklyn, light cruiser, no dates set; L.B.P. 600'; beam 61'8"; standard displacement, 10,000; geared turbine engines; express type boilers.

Hull No. 50, Erie, gunboat, no dates set; L.B.P., 308'; beam, 41'; standard displacement, 2000 tons; geared turbine engines; express type boilers. Building for U.S. Navy.

UNITED STATES NAVY YARD Philadelphia, Pa.

NEW CONSTRUCTION: Philadelphia (CL41), light cruiser, 10,000 tons, length overall 608'4"; breadth 61'9" extreme; depth 34' at side; estimated completion, Nov., 1936. Minneapolis (CA36), heavy cruiser, 10,000 tons, length overall 607'6"; breadth 59'6" molded; depth 35'8"; tentative delivery date August, 1934; Aylwin (DD355), destroyer, 1,500 tons; Cassin (DD372), destroyer, 1,500 tons; Shaw (DD373)

Freights, Charters, Sales

May 16, 1934

The past month the freight market after showing a somewhat stronger feeling in Oriental lumber and grain, and after the usual number of berth charters from British Columbia to the United Kingdom, has ended in the doldrums. This is largely due to the general strike of stevedores all over the coast and the consequent disturbances of all cargo movements. The following charters are reported:

Grain: British steamer Antigone Columbia River or British Columbia to Irish ports, p.t.; American steamer San Felipe, Columbia River to Shanghai, \$3.75; British steamer Victoria City, Columbia River to Shanghai, p.t.; American Motorship Frank Lynch, Stockton, California, to Wilmington, N.C.; A British Steamer Columbia River to Shanghai, lump sum \$22,250, f.i.o.; A Weir steamer North Pacific to U.K./Cont., 20/-; A British Steamer British Columbia to West Coast U. K., 19/- f.i.o.

Lumber: British Steamer Aymeric, British Columbia to Australia,

p.t.; Norwegian Motorship Dagfred, Coos Bay and Puget Sound to Shanghai, p.t.; British motorships King James and Hope Range, British Columbia to St. Lawrence River, p.t.; Norwegian motorship Heimyard, Coos Bay and Grays Harbor to Shanghai, p.t.; British steamer, Harble Down, Coos Bay and Grays Harbor to Shanghai, p.t.; Norwegian motorship Chr. Knudsen, North Pacific to China, p.t.

Miscellaneous: British steamers Ashleigh, Anglo African, and Umberleigh, Danish motorship Nordfarer, British Columbia to United Kingdom (berthed), f.i.o. basis, May; British steamers Monkleigh and Everleigh, British Columbia to United Kingdom (berthed), f.i.o. basis, June; British steamer Sithonia, British Columbia to Australia, p.t.

Time Charter: American motorship Frank Lynch, delivery Gulf, redelivery San Francisco, \$1.20; Swedish motorship Sunnavik, delivery Pacific Coast, redelivery China, p.t.

PAGE BROTHERS



Marine Insurance

A \$700,000 Object Lesson

By Captain Frank Jansen

Instructor in Navigation, University of Southern California

A few months ago a large tank steamer went ashore off the coast of Lower California on San Benito Island. The ship was a total loss, this loss amounting to approximately \$700,000. As the ship had sailed from San Pedro and the distance to the point where she was wrecked amounts to only 350 miles it may be of interest to analyze the reason for this major marine disaster. Up to the writing of this article it has not been possible to obtain any record of the report of the U. S. Steamship Inspection Service of New York City where the court of inquiry was held and we can therefore only theorize on the reasons for such stranding.

As the vessel struck the west part of San Benito Island one must assume that the master laid off a course taking him very close to the island. If he had made use of the information given on the Pilot Chart of the North Pacific Ocean as published by the U. S. Hydrographic Office (see cut) he would have seen that this chart gives him a course that will take him approximately thirty miles to the west of San Benito. There are then, only two explanations that the captain of the tanker choose such a precarious course. These explanations are: 1. That the master thought he was saving miles when laying a course so close to the island and by saving miles was making money for his owners. This is an error many a shipmaster has fallen into, in spite of the fact that a little investigation on his part, would soon have proved to him that the saving in time and miles is, as a rule so small, that it does not under any circumstances pay to take a chance. In the case of the tanker the actual saving in miles on a traverse of about 1033 nautical miles is not more than twelve miles in distance or about one hour in sailing. If we assume that it costs the company \$600.00 per day to run this tanker, we find that her master has saved the company \$25.00 by going so close to land, but as the ship was wrecked, he actually lost nearly three-quarters of a million dollars. Trying to save miles by going close to land has been carefully checked by some of the large passenger lines and as a result of this investigation they have a standing rule never to go closer than five nautical miles to any point of land except when conditions are such that they force the master to pass a land object less than these stipulated five miles.

2. That the ship encountered heavy fog when leaving San Pedro and the course was layed in error. In this

case the master, no doubt, would have chosen a course which would take him well clear off the land points, as there was no reason for hugging the coast under such weather conditions. The cause of the stranding could then have been:

a. That the deviation of the compass was not correctly known to the officers of the ship and that a wrong deviation was used when changing the true course taken off the chart into the compass course to be steered. It would therefore be of interest to ascertain how often the deviation was checked on this specific ship and if the past experience with the standard compass has shown that this compass had erratic changes in its deviation. If such was the case it should have been all the more reason for the master of this tanker to take a course well off shore instead of hugging the coast. In this connection this writer would suggest that the standing rule of first class liner companies should also be enforced on cargo carriers, namely that the deviation of the compass should be checked at least every watch day and night. As the officer on watch has as a rule time hanging heavily on his hands, there is no reason why he should not pay close attention to the checking of the deviation.

b. That the total error of the compass was incorrectly applied. This is an error that happens more often than is generally assumed. It therefore should be a standard rule that at least two of the officers check all courses independently of each other and then compare the results.

The above given three possibilities, i.e.

1. The course was laid off too close to the land.
2. The deviation was not correctly known to the officers.
3. The total error of the compass was applied incorrectly, are the only causes that can bring about a stranding of a ship when the vessel is leaving port and the ship remains under control.

In general, it is the opinion of this writer that the navigating officer of any ship should apply himself as much as possible to the safe navigation of the ship while he is on watch. Even in fine weather he can learn a great deal by taking astronomical observations, deviation bearings and other checks. Although they may not be actually necessary, the experience so gained will be

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This section from U.S. Pilot Chart of the North Pacific Ocean shows the location of San Benito Island, as a black dot, directly east of the junction between the steamer tracks to Panama from San Francisco and from Los Angeles.

of great value to him at times when weather conditions are less favorable. Navigation is like playing the violin; only a person who will practice continuously will remain an expert and become a master of his profession, while the one who neglects to keep alert and in practice will soon become rusty.

Panama Canal Finances

(Continued from Page 169)

remembered in this connection that but few ships in our American Merchant Marine receive any Government aid whatever. It is also to be remembered that, notwithstanding the fact that the coastwise service of the United States is protected from foreign competition, competition in intercoastal service between Amer-

ican ships is decidedly keen, and to attempt to add approximately \$1,250,000 in tolls to vessels in this greatly competitive trade is unfair and unwarranted.

We maintain that the Canal was built in the first instance largely because of its military value. We maintain that a purely commercial canal would not have cost as much as a canal that was intended to be utilized for both commercial and military service. We maintain that the lowest rates consistent with the necessities for proper maintenance and upkeep should be provided, and that American ships should secure every advantage in the use of this public utility that was provided for by public funds. We maintain that there is no reason why an arbitrary rate of three per cent should be demanded; but even if such a rate was really necessary, that rate should be predicated upon the commercial value of the Canal rather than upon the combined capitalization set up for commercial and military purposes.

Attention is called to the two tabular statements reproduced herewith which are taken direct from the official records of the Panama Canal Administration and show that from the start the Canal has been and is a money making enterprise.

We do not set forth any argument in relation to the dual system of measurement now in force in the Canal, for the simple reason that, as before stated, we are not in opposition to a single system of measurement, provided there is no increase in rates for commercial ships.

In further support of our contention that there should be no increase in Panama Canal tolls, we call to the attention of the Committee the general provisions of the National Recovery Act. The shipping industry is about to agree with the Government and interested parties on a code of fair practice intended to decrease unemployment and to increase wages in the shipping industry. By reason of the general provisions of this Code and other Codes in relation thereto, we find the shipping industry will be required, under the terms of the Recovery Act, to pay higher costs in construction, reconstruction and repairs in shipyards, increased wage scales on ship and dock and in the internal management of shipping corporations which will entail thousands of dollars in increased overhead to American ships. We must also note that the shipping industry has nothing to sell except the carrying capacity of its several vessels, and there is no code provi-

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sion whereby a single additional dollar of new money may be gained that will enable the shipping concerns to meet these large increases in cost of operation. It is also to be remembered that, according to the provisions of the Panama Canal Act, which provides that rates shall be levied according to the earning capacity of the ship, it frequently happens that a vessel transits the Canal with not more than 100 tons of cargo on board, yet that ship is required to pay the full measurement of her earning capacity, regardless of the amount of earnings that the ship will receive for that particular voyage.

Therefore, the Pacific American Steamship Association and the Shipowners' Association of the Pacific Coast are strongly opposed to any increase whatever in

tolls, because if there is an increase in tolls, this added burden will make it all the more difficult to carry out the President's program and to restore normal business conditions in our American Merchant Marine.



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INSURANCE

BROKERS FOR THE ASSURED—AVERAGE ADJUSTERS

Marine Insurance Notes

Unseaworthy Without Pilot: An interesting decision was recently handed down by the U. S. Circuit Court of Appeals Fifth District. In the case in question, the steamer Framington Court had loaded news print at Cornerbrook, Newfoundland, for American Gulf ports. Within an hour and a half after leaving her dock, which is at the head of a narrow inlet from the sea, she stranded on an island in the port approaches. Her master had taken a pilot on entering Cornerbrook, but decided that he could get out without one to avoid delaying at pilotage limits. No officer of the ship had ever previously visited that port. The court held that (in view of this ignorance of local conditions on the part of the ship's officers) failure to take a pilotage rendered the ship unseaworthy. Therefore the vessel's owner was held liable for damage to cargo. This decision reversed the decree of the District Court.

Automatic Sprinklers on Liners. The Orient Line (British) have decided that the 20,000 gross ton liner now building at Armstrong Vickers, Ltd., for their Australian service shall be fitted with a Grinnell automatic sprinkler system in the passenger accommodations. The system includes an alarm on the bridge at the instant that any sprinkler head opens, and a visual

indicator of the location of the fire. Underwriters are said to have granted for this installation a substantial rebate in premium, based on their long and favorable shore-side experience with the Grinnell System.

Underwriters Surveyor Passes. Captain Andrew Martin, since June 1927 one of the four surveyors for the Board of Marine Underwriters at San Francisco, died in that city on April 24, last. Captain Martin had been a well-known and well-loved friend of many shipping and insurance men on the Pacific Coast for thirty years. For some years he was Port Superintendent at San Francisco for the Pacific Mail Steamship Company.

Seizure of Soyo Maru. Another of the many unprecedented actions of the present administration occurred at San Pedro during the last week in April, when the collector of internal revenue seized the Japanese steamer Soyo Maru and her valuable cargo of silk and other oriental products for an alleged shortage of income tax payments for the fiscal years 1917-1918-1919. Toyo Kisen Kabuslicki Kaisha, owners of the vessel, claim that their accounts show a \$300,000 refund is due them from Uncle Sam. Our good Uncle, being no relation of theirs, claims they owe him \$428,668. After some negotiations and three days delay, Soyo Maru was allowed to continue her voyage to New York, on guarantee from the Japanese Embassy at Washington that she will be turned over to the U. S. at New York.

This seems an extremely foolish action on the part of agents of the United States and certainly is very liable to increase the friction of international relations.

From the underwriter's viewpoint, there arises the question, "If income tax is a lien on a vessel, is it also a lien on the marine insurance policy covering that vessel?"

Does failure of the owner to declare that lien have any effect on the underwriter's liability?

New Type of Personal Assurance. The box office treasurer in the Hartman Theatre in Columbus, Ohio, didn't know what to make of it, but he accepted it. A patron, having lost his tickets to a Katharine Cornell performance, and unable to buy more for the sold-out engagement, presented an affidavit, sworn to before a notary, detailing the locations of the lost seats.

The patron undertook and agreed "to save harmless and to indemnify the Hartman Theatre, Columbus, Ohio, or any person, persons or corporation, claiming by, through or under, said Hartman Theatre, against the tickets being produced by any one claiming to be the owner thereof."

They let him in.

—Literary Digest.

Twenty-five Years Service. C. E. Hydes, the very popular and efficient manager of the Marine Service Bureau of the Fireman's Fund Insurance Company of San Francisco, is receiving congratulations from his many friends on the fact that he is now in his twenty-fifth year of service with the marine insurance department of that firm. Mr. Hydes has always taken a great interest in public contacts, and was one of the founders of the Foreign Trade Club of San Francisco. During 1921, he was president of that club.

The Monkey and the Fiddle: Dr. Frederic Sohr, president of the Marine Underwriters' Association of Belgium read a paper recently before the Insurance Institute of London in which he recorded the growth of the state interference with business in general and with the marine insurance business in particular. In some countries, notably Belgium, this interference has led to some demand for state monopolies of the insurance business. This, said the good doctor, would resemble a "monkey seizing a violin under the delusion that the mere possession of the instrument would be enough to extract from it the melodies and harmonies which only experience combined with training, care, hard work, and musical taste could achieve."

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Centenary of Lloyds Register. It is something of a coincidence that this year's copy of Lloyd's Register Book is to cost shipowners an extra guinea—that the price has been raised from six to seven guineas—for this year marks the centenary of the book pretty much as we know it today.

Actually, of course, a Register of shipping was in being long before 1834, but that was the year when the underwriters and the shipowners, each of whom had been running their own separate book, settled their differences and brought into existence the new "Register Book of Shipping" by combining the two publications. The rival volumes had struggled against each other for 25 years before the amalgamation was accomplished in 1834. And on January 17 of that year a "Prospectus of the plan for the establishment of a new Register Book" was issued by the joint Committee.

The superintendence of the affairs of the society was, according to the new scheme, to be entrusted to a committee in London, which would be composed of twenty-four members, consisting of equal numbers of shipowners, merchants and underwriters, in addition to which the chairman of Lloyd's and the chairman of the Shipowners Society were to be ex officio members of the committee. Most important of all, however, was the fact that, subsequently, shipbuilders, marine engineers and associated trades connected with the construction of ships and their machinery and boilers, were elected to Lloyd's Committee.

The funds of the new Society, declared the prospectus, were not to be made up solely out of the sale of the book, but additional fees were to be charged to shipowners for surveying and classifying their vessels, according to an approved scale. There is a wealth of romance in that bulky Register and its slim companion the Supplement, for despite its cost it is one of the world's best sellers, and it travels to the farthest corners of the earth. Until the depression became so acute, round about 8000 copies were circulated each year—and practically every bit of the publication of this vast work is carried on within Lloyd's itself. There must be somewhere round about 35,000 vessels contained in the book (which, of course, includes vessels not classed with Lloyd's) and their total tonnage is in the region of 64 million tons. Out

of this approximately 38 millions are classed with Lloyd's, so we can see what a painstaking job it is to ensure accuracy. And on this score of correctness Lloyd's must stand supreme—a tribute to its staff and organization.—Nautical Magazine.

● **False Alarms.** Those connected with marine insurance in London have repeated, through the columns of "Lloyd's List," a plea which ought to be taken to heart by every seaman, if, indeed, it should be necessary at all. It concerns the practice, through pure laziness, of throwing overboard bundles of papers bearing the ship's name instead of burning them. Time after time something like a panic has been caused for the safety of a ship by a bundle of such papers being picked up and suggesting a disaster; curiously enough on at least one occasion they have been recovered a considerable time after they had been jettisoned quite close to the actual position of the ship at the time, which naturally increased the uneasiness.

It is just as easy to burn such papers under one of the boilers and far better for everybody concerned, for naturally alarm over the safety of a ship spreads to the safety of her people. The precautions against such a false alarm are simple enough, destruction by fire, and should be universal. Occasionally, of course, instances crop up which are unavoidable, like the washing up of the body of one of the Parma's seamen wearing a marked lifebelt, but there are far too many avoidable instances. Yet the problem is no new one; it is many years ago since Messrs. Kellick, Martin and Company having had a panic that one of their clipper ships had been lost through the headboards of her figurehead being washed up soon after she had left England, issued orders that these headboards were to be unshipped and stowed on board as soon as their ships left port.—The Nautical Magazine.

Trade Notes

Radiotelegraph Expansion. Mackay Radio and Telegraph Company, affiliate of International Telephone and Telegraph Corporation, has concluded an agreement with the Japanese Government signed on behalf of the Minister of Communications by Naotaro Yamamoto, Director General of Telecommunica-

tions and Takeo, Iino, Chief of the Foreign Traffic Department of the Department of Communications, which provides for the establishment of a new direct radiotelegraph circuit between the United States and Japan. Additions to the powerful Mackay Radio Station at San Francisco are completed and preparations for the new circuit at the Japanese end are under way, according to Ellery W. Stone, Operating Vice-President of Mackay Radio, who expects the circuit to be ready to open within a few months. In Japan the transmitting station for the new Mackay Radio service with America is at Oyama and the receiving station at Fukuoka, both near Tokyo.

Mackay Radio service to China was opened in 1933 as one of the major extensions of a year of widespread expansion for this company which has opened within the past year four new transoceanic circuits. It has recently extended its domestic network by adding Washington, Boston, Chicago and New Orleans to New York and the seven principal cities of the Pacific Coast.

Steam Trap Announcement. The Nason Manufacturing Company, New York, is now exclusively manufacturing the full line of "Detroit" Steam Traps, including the Return, Vacuum, Combination, and Separating Traps, and also the "Detroit" Receiver.

The principle of the "Detroit" Trap is an arrangement of valves, actuated by a tilting tank through an arrangement of levers. Tank, mounted eccentrically, on hollow trunnion, is held in horizontal position when empty, by means of large counterweight. When tank fills with water (through hollow trunnion), counterweight is overbalanced, and tank tilts, actuating the valves.

Managerial Transfer. Mr. Batt L. Spain, who has been for the past twenty-four years with the General Electric Company at the West Lynn works as manager of turbo-blower sales, is now connected with Ingersoll-Rand Company as manager of the Turbo-Blower Department. He will be located at the general offices, 11 Broadway, New York.

The occasion for the transfer of Mr. Spain is the acquisition of the turbo-blower business of General Electric by Ingersoll-Rand Company.

Pacific Marine Personals

"NAMES ARE NEWS"

BY BERNARD De ROCHIE

● Grace Promotion

With the distinction of being one of the youngest men in the Grace Line personnel to receive outstanding promotion, **Fred M. Rohrer** is back at Grace headquarters at 2 Pine Street in San Francisco with the appointment of assistant Pacific Coast manager.

His immediate chief will be **Fred L. Doelker**, who is director of operations for Grace Steamship interests on the Pacific slope. **Fred Rohrer's** career has been a step-by-step advance from office boy through the numerous positions in a steamship and transportation company. His experience has been in various departments of operating and in both Eastern and Western offices of Grace Line.

His new post will bring him into working cooperation with Grace officials **Guy E. Buck**, in charge of Central American and South American freight; **Zac T. George**, head of the intercoastal freight activities; **Roy V. Crowder**, passenger traffic manager, and other executives of the many departments of the vast Grace interests.

Rohrer started in when he was about fifteen years of age for the old Pacific Mail. In 1919-20-21 he was in the Baltimore offices. Then in 1925, when the Panama Mail Line was organized as a subsidiary of Grace Line, he joined this organization as an accountant. He was later named chief accountant and now has been promoted to his present position.

● American-Hawaiian

In our call at the American-Hawaiian offices in San Francisco, we learned that vice-president **John Cushing** was leaving for New York by way of Los Angeles. Dearborn **Clark**, Pacific Coast traffic manager, visited the Seattle district in connection with business affairs and **Captain Kane**, port superintendent was due back from a round-trip to Panama on one of the A-H liners.

● Leviathan Returns

Announcement was received on Wednesday by **L. E. Archer**, Pacific Coast passenger traffic manager of the United States Lines, that the **Leviathan**, flagship of the U. S. Lines fleet and largest steamship under the American flag, which was laid up at New York during the winter, will be put back into trans-Atlantic service in June.

Her first sailing will be June 9 from New York for Plymouth, Cherbourg and Southampton. No German ports will be included in her route. Scheduled dates for her later sailings are now being worked out. Her first westbound sailing from Southampton will be on June 20 and her second from New York June 30.

"The ship is being put into perfect condition," said **Mr. Archer**. "As she received the best possible care while laid off, the work of reconditioning her can be done completely before June 9."

Mr. Archer interpreted return of the **Leviathan** to service as the strongest evidence recently transpiring that travel is definitely on the upgrade. Advance bookings for the Manhattan and Washington, and other U. S. Lines ships, are so heavy for the summer months that it is expected the **Leviathan's** accommodation in all classes will be quickly taken.

The **Leviathan** re-enters the trans-Atlantic service with her June 9th sailing. Commanding officer will be **Captain A. B. Randall**, commodore of United States Line.

● Swayne & Hoyt

William H. Baldwin, well-known San Francisco naval architect, has joined the shipping firm of **Swayne & Hoyt, Ltd.** in the operating department, and leaves San Pedro May 6 for a cruise on the "Point Ancha". **Mr. Baldwin** formerly was with **Baldwin & Blake, Inc.**, naval architects and vessel brokers.

● Seamen's Welfare

Herman D. Nichols, Tubbs Cordage Company associate, tells us of the plans of the Junior Chamber of Commerce for the First Annual Exhibit of Community Chest Agencies to be held in the Civic Auditorium on June 15 and 16.

We're particularly interested in the agencies operating to assist marine workers and sea-faring men. Everyday life in a seamen's welfare agency on the waterfront will be one of the exhibits. **Paul Bissinger** is chairman of the event.

There will be no admittance charge and no solicitation of funds. Among the features to attract our readers will be a continuous motion picture show of educational films, celebrities of stage, screen and radio and many well-planned exhibits.

● Old-timers Meet

Up in the Columbia-Willamette waters the Veteran Steamboatmen's Association of the West are calling all the old-timers to a Reunion and Picnic at Champoege Park, Sunday June 24.

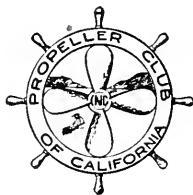
Captain Arthur Riggs, master of the organization has announced: "Come early, bring your family and your lunch and stay all day." **Captain Riggs** is being assisted by officers **Captain Eugene Hayden**, **Captain Walter Monical**, **Captain Ray Mooney** and a long list of others. How we'd like to come aboard!

● Reefer Plans

Angelo Conti, New York marine consulting engineer who is well known to many Pacific ship-operating officials, has applied for a \$3,500,000 loan from the shipping board bureau of the Department of Commerce—in behalf of a corporation yet to be formed. The fund is to be used for building five 17-knot fully refrigerated ships—for inter-coastal service.

Official News of the

PROPELLER CLUB of California



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● Luncheon Meetings—

Three meetings this month! May 1 started us off on our sailing schedule with President Harry T. Haviside on the bridge. Guest speaker was Frank H. Beckmann, authority on economics and business trends. His topic, "Getting Back to Normal", was a thirty-minute discourse on what is happening industrially and what is the outlook for the future. Mr. Beckmann is an unusually spirited speaker, with a Floyd Gibbons rapid-fire delivery that thrilled his audience. He was introduced by chairman of the day, Bern De Rochie.

May 15—

Many of his old friends of ship-building days turned out to hear Walter W. Johnson talk on "Gold and Gold Dredging".

Mr. Johnson knows his topic thoroughly and made his coverage particularly interesting to his audience. He traced the romantic story of gold from Biblical times and brought us down to the modern day dredging methods. The speaker is former head of Union Construction Company, Oakland, shipbuilders of war-time activity. He was introduced by Joseph J. Coney of Hilcone Steamship Company, who acted as chairman of the day.

May 29—

We are writing these "comments" in advance of this scheduled program. Looks like a big day for the Propeller Club as the announcement reads: "Old Timers' Day" — with Jesse B. Cook spinning yarns of his experiences on the San Francisco waterfront—forty years of police work—from patrolman to police commissioner. Tales of sailing ship days, shanghai days, buckmates, hard-fisted skippers, belaying pins — iron men — wooden ships." The program committee reports their plans to have an exhibit of old-time photographs and sailing-ship models.

— P C —

OUR FIFTH ANNUAL SPRING BANQUET

While it was disappointing that the fates decreed a postponement of our big celebration scheduled for May 22, still we can now look ahead and anticipate. We still have the big affair to enjoy—which is far better than retrospecting, as anyone will agree.

The stage was all set for boarding the S.S. Pennsylvania some 300 strong. The committees had progressed splendidly with their work

and the enthusiasm of Propellers was high.

A new date will shortly be announced—and watch the Propellers respond! It's going to be worth waiting for — this Banquet and Jinks.

— P C —

Have you seen President Haviside's fine model of the clipper, Flying Cloud?

It's a great job—judged accurate by experts—and it's on display at Haviside headquarters.

IN MEMORIAM

Captain Andrew Martin: A real shipmaster and a grand fellow. He has gone to rest.

● New Members

As reported by Secretary-Treasurer Stanley E. Allen, a welcome is extended to the following new members:

Bruce Carter
Marine Insurance
Ray Sanders
Turco Products Co.
John C. Piver, Jr.
Shipping Register
Brace Swope
Great Western Cordage Co.

A forceful foursome — snapped at the Menlo tournament. Propellers B. P. Sibley of Socony-Vacuum; Frank DePue of Moore Dry Dock Company; Pat Donovan of Panama-Pacific and Captain Blackstone of U.S.P. & I. Agency.



● Broadcast

Charles L. Wheeler, vice president and general manager of the McCormick Steamship Company, gave a stirring address over the air waves on the evening of May 15. His subject, "The Merchant Marine and our Foreign Trade", while appropriately developed to interest the general public, was of great interest to shipping and ship operating men as well. This writer heard many mighty favorable comments around California Street on the following day. Regular radio talks of this nature by able authorities such as Mr. Wheeler would go far in bringing the vital problems of the merchant marine starkly before the voting public.

Captain T. A. Ensor is on an extended trip to New York on business for the Kerr Line. Captain Ensor is resident manager in San Francisco.

● George Armes

Another visitor to the Atlantic Seaboard this month is George A. Armes, president of General Engineering & Dry Dock Corporation. Mr. Armes will go to Washington to do his part in bringing some of the new navy construction program to this Coast.

As these notes are being written, Pacific Coast shipping is in the grip of a general strike. We fervently hope that a satisfactory settlement will have been effected by the time this edition of P.M.R. comes from the presses. The mediation board assisted by assistant secretary of labor, Edward F. McGrady, is composed of Dean Henry F. Grady, Judge Charles A. Reynolds and Dr. J. L. Leonard appointed by the President when the longshore strike first flared.

New chairman of the Pacific Westbound Conference is R. H. Pierson, traffic manager of Williams, Dimond & Co.; Vice-chairman is Cornelius Winkler of Trans-Pacific Transportation Company. Next general meeting will be held in California in October.

"It is not possible for American owners to compete with foreign steamship lines without Government cooperation", stated P. A. S. Franklin, head of I.M.M., testifying before the Black senatorial committee.

● Bilge Club Elects

Newly elected directors of the Bilge Club, San Pedro organization of waterfront executives, are: Charles Bayly, Crescent Wharf and Warehouse Company; Chester A. Beckley, Merritt, Chapman & Scott Corporation; Herb. E. Pickering, Wickersham Company; Chris Christensen, Southwestern Stevedoring Company; Tom Forster, western manager, Bethlehem Shipbuilding Company; Herman Haubold, works manager, L. A. Shipbuilding and Drydock Corporation, and Jack Malseed, marine superintendent, Shell Company.

Captain Sam Kennedy, local inspector of hulls for the United States Bureau of Navigation and Steamboat Inspection for the district of Los Angeles, is the retiring chairman. A meeting of the new board of directors was held late last night to elect a new chairman and appoint a secretary and a treasurer.

● Passenger Travel Gains

First class passenger travel from the Pacific Coast to Europe in April 1934 was 87 per cent higher than in April, 1933, and third class traffic for the same period jumped 227 per cent, according to a report issued today by C. R. King, secretary of the North Pacific Coast-Europe Passenger Conference.

The steamship lines included in the report are the French Line, East Asiatic Company, Furness Line, Hamburg-American Line, Holland-America Line, Johnson Line, Liberia Line, North German Lloyd and Royal Mail, Ltd.

Even more significant, he said, is the fact that April business topped the all-time April record, established in 1931, by 6.50 per cent for first class and 90.32 per cent for third class travel.

Travel from Europe to the Pacific Coast over the nine conference lines also showed an increase—76 per cent for first class and 685 per cent for third class in April compared to a year ago.

These increases are the largest ever realized by lines of the conference, Mr. King said, and are attributed to several recent developments here and abroad—greater stability of exchange and conditions in Europe, better feeling in the United States, and increased popularity of the Panama Canal route.

The nine lines of the conference

operate more than fifty vessels, with four sailings per week.

● "Tac" is Back

A. A. Tacchella, one of the best Diesel experts on the Coast, has recently returned from the Puget Sound area bringing us details of the rebuilding plans for the Peralta. The former Key ferry was burned to the main deck during the Key System mole fire. Purchased by the Puget Sound Navigation Company, Seattle, she will be rebuilt as a single ended passenger and vehicle ferry with a service speed of 17½ knots.

"A 3000 S.H.P. Trunk Piston Marine Diesel will replace the former S.H.P. Turbo Electric Drive", reports "Tac". The owners selected the Busch-Sulzer 10-cylinder single-acting unit basing their selection on the mighty successful record of their motor ferry, Chippewa.

● C-E Appointments

R. L. Johnson, San Francisco representative of Combustion Engineering Company, Inc., tells us of two important appointments by his headquarters:

B. J. Cross, who from 1921 to 1931 was associated with the engineering activities of Combustion Engineering Corporation, rejoined the engineering department of the present organization, Combustion Engineering Company, Inc., on May first. He will be engaged in development and research work under the direction of John Van Brunt, vice president in charge of engineering, and of Henry Kreisinger. Prior to 1921 Mr. Cross was with the U. S. Bureau of Mines and was identified with a number of notable investigations on the burning of fuels.

William Lloyd, for many years identified with the design, manufacture and sale of Coxse stokers, has again become associated with the engineering department of Combustion Engineering Company, Inc., in much the same capacity of that of some years past. While mechanical superintendent for the Lehigh Valley Coal Co., Mr. Lloyd became interested in the development of the Coxse Stoker and was responsible for many of the earlier installations. In 1914 he became president of the Coxse Travelling Grate Company and later was made president of the Coxse Stoker Engineering Company which subsequently was affiliated with Combustion Engineering Corporation.

● New Chairman

The Bilge Club, as important to marine-minded men in the L.A.-San Pedro-Wilmington district as the Propeller Club is to maritimers around the Golden Gate has just elected as chairman **Chester A. Beckley** of the Merritt-Chapman & Scott Corporation. **Arthur A. Perg**, marine paint specialist, is the new secretary. **L. E. Anderson**, harbor district banker made such a good treasurer that he has been elected for another term.

● New Pier Work for McCormick

The request was made May 17 by the Board of State Harbor Commissioners for the sale by the State Treasurer of \$500,000.00 worth of the 1913 Harbor Bond Issue for the construction of much needed improvements at the southerly portion of the waterfront.

Most important of these improvements is a 140 foot extension at the outer end of Pier 42 for the accommodation of the huge liners of the Dollar Steamship Company. A new track will also be constructed along the south side of the wharf as well as three adjustable cargo aprons. The new length of the wharf will be 935 feet.

A two-story steel bulkhead building will be constructed across the faces of piers 38 and 40 and the bulkhead wharf between. This will be for the use of the McCormick Steamship Company.

A similar reinforced concrete bulkhead wharf between Piers 44 and 46 will be constructed to replace the present timber bulkhead wharf at that point.

In the ordinary course of events, bids for the work will be taken in about six weeks and construction will begin shortly thereafter.

● Lapham, Key-Speaker

National Maritime Day was observed in Los Angeles by hundreds of visitors attending the international exposition of foreign trade staged at the Chamber of Commerce building. A big program held at the Biltmore climaxed many other meetings held during Foreign Trade Week. **Roger D. Lapham**, president of American-Hawaiian Steamship Company was key-speaker—on the topic: "The American Merchant Marine".

GENERAL S.S. CORP. PERSONNEL CHANGES

Appointment of **R. S. Wintemute**, formerly vice president in charge of traffic for the General Steamship Corporation, Ltd., to the post of vice president in charge of the northern district, with headquarters at Seattle, was announced recently by **Harry S. Scott**, president of the company.

R. K. Brown, Jr., and **J. C. Settle** will continue as managers respectively of the Seattle and Portland offices of the company, the announcement added.

Promotion of **C. F. Yenney**, heretofore in charge of Oriental services in the company's Los Angeles office, to assume the position of general freight traffic-manager in San Francisco. As the title implies, Yenney will have general supervision over the company's freight traffic.

Designation of **G. R. Bower**, heretofore in charge of the company's intercoastal business at Los Angeles, to handle Oriental traffic there following Yenney's transfer; appointment of **J. C. Miller** to succeed Bower in charge of the company's intercoastal traffic in the South; promotion of **T. B. Matthews** to the position of office manager at Los Angeles, and promotion of **Morse Frazier** to manager of the Mediterranean service, San Francisco office.



H. S. Colby.

H. S. COLBY MADE SALES MANAGER OF COMBUSTION ENGINEERING COMPANY, INC.

The appointment of **H. S. Colby** as General Sales Manager of Combustion Engineering Company has just been announced by **R. M. Gates**, vice president of that company.

Mr. Colby, until recently, was president of the Air Preheater Corporation. His technical education was acquired at Cooper Union and Columbia University and for the past twenty years he has been engaged in the design, production and sales of steam generating equipment involving boilers, stokers, pulverizers, economizers and air preheaters. This background of experience and an extensive acquaintance in the field of steam generation, eminently fit him for his new duties, which include direct charge of district office activities.

● Old Shipmates

Old-time friend of **Stanley E. Allen** of Propeller Club renown is **Captain John Smith**, skipper of the General Pershing now berthed at the Moore Yard in Oakland. A reunion of the two old friends will bring out many a sea-going yarn.

● Play Ball

Terry La Croix, "quick turnaround" expert of the Dollar Steamship Lines is appearing in the lineup of the Dollar team in the Alameda City Softball League. The Dollar nine consists of **Melvin Martin**, pitcher and vice-president of the league, **Williams**, **La Croix**, **Beneditti**, **Rykens**, **Gordon**, **Rafferty**, **Howard**, **Heather** and **Sugden**.



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NATIONAL MARITIME DAY IS OBSERVED

Mrs. James Roosevelt, mother of the President, participated in the ceremonies scheduled on May 22 as part of the second annual observance of Maritime Day.

Maritime Day was inaugurated last year to commemorate the sailing of the S. S. Savannah, first steamship to cross the ocean. Mrs. Roosevelt planted a tree in Corlears Park, New York, where the pioneer ocean steamship was constructed in 1818. The tree was sent from Savannah, Georgia, from which port the vessel set out on her historic voyage. Governor Eugene Talmadge on May 18 instructed the state forestry commission to secure a suitable tree and turn it over to Mayor Thomas Gamble and Raymond D. Sullivan, of Savannah, for shipment to New York.

The Savannah was built as a sailing packet, but was later altered to accommodate a single-cylinder steam engine of 72 horsepower. Her builder was Francis Fickett, who came of a long line of ship-builders and artisans. The Savannah left the Georgia Coast on May 22, 1819, arriving in Liverpool 25 days later. She also visited the Baltic and returned home the last of November. She was lost off the South shore of Long Island in 1821.

The New York observance was one of some fifty meetings held throughout the country. The participation of the President's mother was particularly fitting, because of her long-standing interest in maritime matters and because President Roosevelt last year issued the proclamation that made Maritime Day a reality. The 1934 proclamation was issued on May 4, and called for a nation-wide observance of the event.

Exercises in connection with Maritime Day also were held at New London, Connecticut, where Stevens Rogers, navigating officer of the Savannah, is buried. The speakers were Governor Wilbur F. Cross, of Connecticut; R. J. Baker, president of the American Steamship Owners' Association, of New York; H. Gerrish Smith, president, National Council of American Ship-builders, New York. A. E. MacKinnon, secretary of the Maritime Day Committee of the National Maritime League, served as chairman. Officers and men of the Coast Guard Academy also participated under Captain Randolph Ridgely, Jr., commandant.



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*Pencils though. Fountain pens and indelible crayons leave us cold.

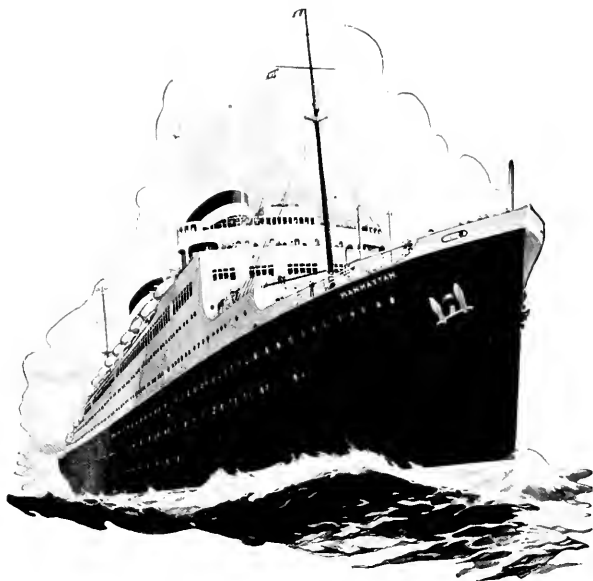
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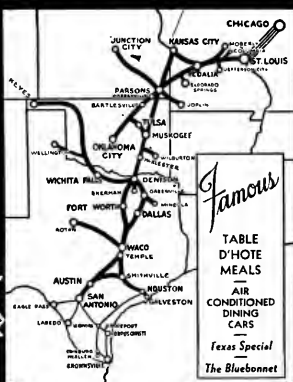
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Book Reviews

SMALL BOAT BUILDING. By Edwin Monk, naval architect. 115 pages, with numerous 9 by 12 drawings and illustrations, bound in buff cloth with blue stampings. Published by Charles Scribners Sons, New York. Price \$3.00.

The author, a well-known practicing naval architect on the Pacific coast, has designed his book especially for the amateur boatbuilder, the man who frequently gets as much pleasure in the construction of his craft as he does in the use of it.

Here are presented a wide variety of small boat designs and a clear explanation of small-boat construction in general, with particular reference to the designs described. Construction methods and details are fully considered both in text and diagrams. These methods and details are all practical, devised by an expert, and backed by extensive first-hand experience in small boat construction and design. Many of the methods are extensively used in boatyards. In the plans the purpose has been to produce a nice-appearing design that in every way looks the part but with simplicity of construction always kept in mind. The book contains designs for sixteen modern small boats, rowboats, sailboats, outboards, a 125 class hydroplane and a runabout.

NO THANK YOU. By Vash Young. 200 pages bound in scarlet with colorful decoration in modernistic fashion. Published by Bobbs-Merrill Company. Price \$1.50.

A true story of a drunkard who comes from a drunkard's family. Vash Young reveals strikingly the insidious psychological turn of the inebriate's mind as he condones himself for his weakness, even while he is looking for the nearest saloon, speakeasy or "beer parlor." How one man found release from this leech which was sapping his life of all which makes life worth living is vivid reading for drinker and teetotaler alike.

This is a book you won't want to miss.

MURDER MADE IN GERMANY.

By Heinz Leipmann. 258 pages bound in gray and red. Published by Harper and Brothers. Price \$2.50.

The author says: "I will answer with my honor, my livelihood, and my life for the fact that all the incidents in this book have actually happened." Against this affidavit one can hardly say that the story is unbelievable, but it is nearly so. The reader shudders at the brutality and the suffering in the narrative. There are many books appearing on the question of the Jews in Germany, but this is undoubtedly

one of the most horrible of them.

COBBERS. By Thomas Wood. 250 pages with ten full page photo-engravings. Published by the Oxford University Press, New York. Price \$2.50.

This personal record of journeyings through Australia, Tasmania, and some of the "islands of the coral sea" recites the observations and conclusions reached in many friendly contacts with individuals and groups in all classes and conditions of life.

The author was sent to Australia on an official professional mission, but no mention of this appears in the book. Statistics are avoided. Of them, the author's preface remarks: "They do not appeal to me; they are soon out of date, and they look untidy."

Three years, 1930-31-32, were occupied by these journeys. 1933 was occupied in preparing the book. Australian slang supplies the title. A "cobber" is a companion or mate. This is a companionable book. It gives an account of a varied and far-reaching journey, but it is not a "travel book," nor anything resembling it. It is rather a story of a man who met other men in a new country, of an Englishman's friendships with Australians as he passed through their continent for the first time. Descriptions of places, experiences, sailing and cattle and timber—all the facts in this book are the outcome of human relationships.

Captain H. F. Long Speaking . . .

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Pacific Marine Review

JULY 1934

SAN FRANCISCO



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Official Organ
SHIPOWNERS ASSOCIATION
OF THE PACIFIC COAST



A Wolf at the Door

THE fight against the very existence of an American Merchant Marine, which seemed to have been concluded with the passage of the Shipping Act of 1928, has been renewed with greater intensity than ever. American shipping now has to combat all the ingenuity and diplomatic skill that its foreign rivals can muster as well as political assaults at home. Supported by various elements within our own country, alien forces have boldly challenged our Government's policy and are spreading misinformation through cleverly designed, anti-American propaganda.

The best way to fight this enemy at the door is to see to it that all Americans understand that the existence of an adequate fleet of American ships will develop our foreign markets; check excessive ocean freight rates; protect against interruptions in service; retain for America a fair share of the revenue derived from her vast overseas trade; benefit industry and business throughout the land; increase employment of American workers both ashore and afloat; contribute to this country's international prestige and serve in the national defense.

When these facts become common knowledge the wolf will get short shrift.

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Pacific Marine Review

The National Magazine of Shipping

VOLUME XXXI

JULY, 1934

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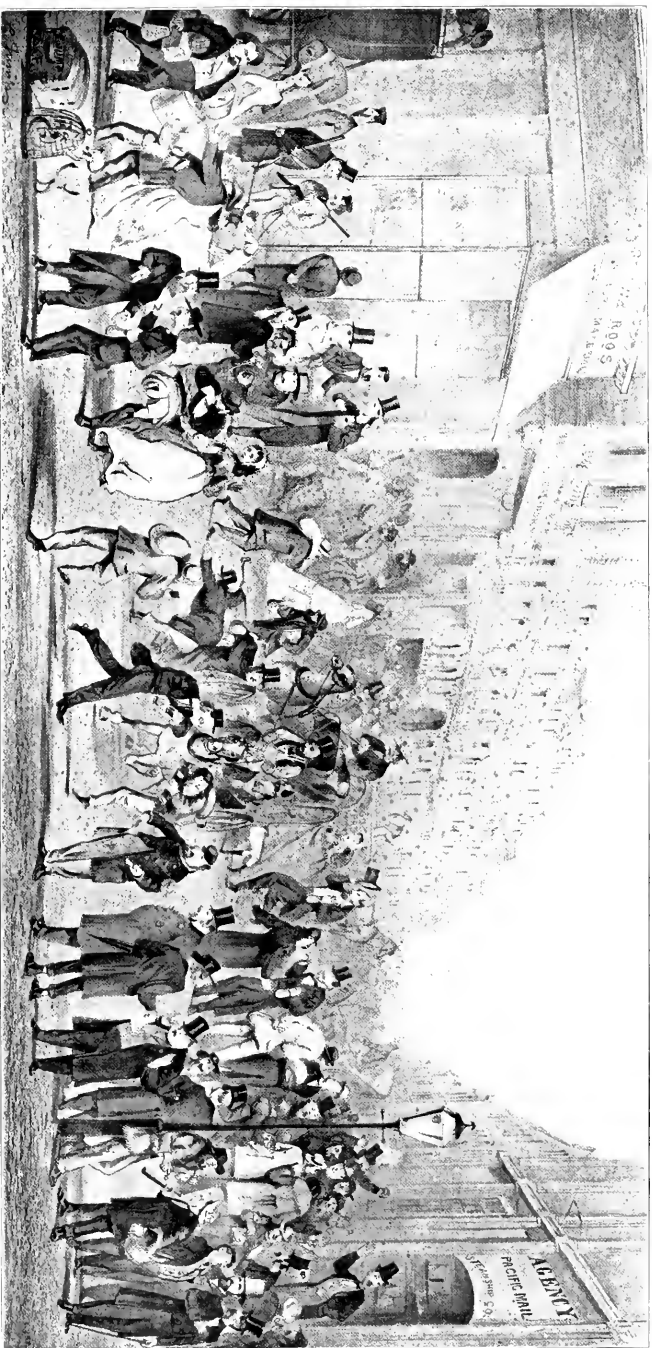
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of the Pacific Coast*

Alexander J. Dickie
Editor

M. J. Suitor
Asst. Editor

Chas. F. A. Mann, Northwestern Representative, 1110 Puget Sound Bank Bldg., Tacoma, Washington

In New York copies of Pacific Marine Review can be purchased at the news stand of I. Goldberg, 42 Broadway; and the news stand of Jacob Fuchs at 17 Battery Place at 25c per copy.



STEAMER DAY, SAN FRANCISCO, 1866

Unfortunately we possess no photographic record of that famous celebration on October 26, 1850, when the Panama Line steamer Oregon brought the good news that on September 9 of that year the Republic of California had been admitted as a sovereign state into the commonwealth of the United States. However, this famous cartoon, by E. Jump, made in 1866, will give some idea of the appearance of California Street on steamer day. We can best realize what this day meant to California pioneers as we consider the lapse of time between September 9 and October 26. In 1850, forty-seven days was fast time for the transmission of important news between Washington and San Francisco. Today such news is known in San Francisco about three hours before the occurrence happens in Washington.

Pacific Marine Review

VOLUME XXXI

JULY, 1934

NUMBER 7

Editorial Comment » » »



The Vanguard of The Sea Van Fleets

Some Ideas Generated by Recent Events In
Pacific Coast Ports

ABOUT fifteen years ago, Pacific Marine Review published an article entitled "The Cargo Ship of the Future," by the late R. Z. Dickie of San Francisco. This article suggested a propulsion plant with a number of diesel electric generating sets, and an electric motor driving the propeller. These generating sets were to be located in any convenient location, leaving practically the entire under deck space free for cargo stowage.

Recently Dr. Ricardo in England proclaimed the same idea in much more elaborate detail. His scheme calls for the use of automotive diesels driving generators, each generating set to be in a sealed but ventilated case, with a small window through which an engineering bookkeeper or clerk would read certain instruments and record the readings. If any of these readings should reach a predetermined danger point, the engineering clerk would ring the bridge, and the navigating officer, through push button control, would cut out that set and cut in a spare. All sets needing attention would be set ashore at first port, and spares taken on to the desired capacity. Thus Dr. Ricardo would put the entire ship in charge of the bridge, and eliminate all engine room personnel.

This is a very interesting engineering possibility, and it is rather significant that it should be revived at a time when so many of the marine unions are getting restive and formulating demands for the eight hour day at sea and other impractical changes in working conditions on shipboard.

Just as we were pondering on the revival of this multiple diesel electric unit for cargo vessels, along came the Pacific Coast stevedores' strike, and set us out on a further elaboration of this suggestion.

Stevedoring is the most expensive operation connected with shipping, and one of the most hazardous occupations known to man. It would seem therefore, that its elimination or its reduction to a minimum would be highly desirable from the standpoint both of economics and of the general welfare. Having an electric power plant with a large capacity, it is a natural step to the handling of cargo electrically, and to the reduction of handling to a minimum by the use of large substantial crates, which, on dock, can become either truck or railway car bodies. On shipboard, these crates could be handled readily on roller conveyors and it would not be a difficult design problem to produce a practical system of pier and ship coordination so that a ship could electrically discharge or load a stream of such crates to or from the pier, without having a single stevedore set foot on the ship.

It may be asserted that such a ship would have a prohibitive cost, and that for a given displacement her carrying capacity would have to be reduced. However, it must be admitted that operating costs other than capital would be much lower than the normal type, and also that turn-around time in port could be greatly reduced, so that yearly capacity on a given route might well be greater with this proposed type.

We already have Seatrains said to be operating profitably between Havana, New Orleans, and New York. These carry railroad cars, and are loaded and discharged by special cranes. Our electrical ships would carry demountable car or truck bodies, loaded and discharged by conveyors and an elevator through a large central hatch. These ships, coordinated with large special rail and truck terminals at all principal ports, would make possible a great reduction of cargo handling costs, and a substantial lowering of transportation rates. We have dubbed this system Sea Vans, Inc. It is not patented or copyrighted. Several naval architects and marine engineers are flirting with similar ideas.

Some such scheme as this is going to be the technological solution of the world's marine transportation troubles. Of course, it is perfectly obvious that to reach its maximum benefit to mankind, Sea Vans, Inc., should have a coordinated, correlated system ashore. Thus it is desirable to have the vans, or crate car bodies, properly loaded and handled, at the point of origin of the merchandise with which they are pack-

ed. The chief obstacle to the use of material handling systems for general cargo is the great multiplicity of packages, and the great diversity in weights, shapes, and sizes of the units handled.

There would be no insurmountable difficulty in effecting a system of assembling these miscellaneous units into vans, just as they are now handled in skid platform loads. Given such a system in rail and truck transportation as we have here proposed for Sea Vans, Inc., the possible savings to be effected run into staggering sums. The establishment of such a shore-side system might well be a matter of research for the President's Transportation Coordinator.

From an engineering point of view, there is nothing fantastic or impractical about Sea Vans, Inc. To any competent naval architect and marine engineer, the design of such units to compose such a fleet would be a comparatively simple problem. Should Union Labor continue its encroachments on legitimate profits, the shipowner will be forced to some solution reducing employment of labor to a minimum. The basic suggestions herein set forth are offered as indicating one such solution.

Strikes by the Longshoremen's Association, the Seamen's Union, or other marine labor organization, may well become the vanguards of the Sea Van fleets, operated entirely from the pilot house, through push button control, by three watches of navigating officers, sans stevedores, sans firemen, sans engineers, sans able bodied seamen.

America's Pioneer Iron Vessel

MARITIME DAY, inaugurated last year as a tribute to the Savannah, pioneer trans-oceanic steamship, has been broadened to include the John Randolph, first iron ship to be built in the United States. Both vessels hailed from Savannah, Georgia. Both were destined to play vital roles in the dramatic development of steam navigation.

The John Randolph was launched on July 9, 1834. Her plates were fabricated by John Laird, in Birkenhead, England, and brought to the United States in a wooden sailing vessel. The ship was 110 feet long, with a beam of 22 feet and a depth in her hold of 9 to 10 feet. Her bottom and sides were of rolled boiler plate a quarter of an inch in thickness.

Her engine was of the condenser type, generating 36 horsepower. The machinery weighed 17 tons and the single boiler 12 tons. The engine had a stroke of five feet, and operated under a pressure of 15 pounds to the square inch. It was constructed by Fawcette, Preston & Company, of Liverpool, and, like the plates, was brought to the United States by sailing ship.

Strangely enough, she was created to answer the demand for vessels lighter than those of wood. The iron steamboat was largely developed on inland waters. The John Randolph was built for use in the Savannah River between Augusta and Savannah. Designed to draw but two and a half feet of water, through some error in calculation she was found to have a draft of two feet,

nine inches, an important consideration on a route filled with sand bars.

The John Randolph was built for Gazaway B. Lamar, Georgia banker and cotton merchant. Young John Laird, at Birkenhead, had succeeded in convincing his older associates that an iron ship would float. His first ship went to Ireland, and her success was instantly heralded around the world. The John Randolph was order No. 2. As there were no iron mills in this country capable of rolling plate, Lamar attempted to have the duty removed. The government rejected the proposal. It seems that Congress had just purchased large forests to perpetuate the Navy's supply of live oak for planking and timbers. One of the tracts was at Pensacola, Florida, the other on Albemarle Sound, near Brunswick, Georgia. The Laird Company, it might be mentioned in passing, was later to contribute to American history the deadly Confederate cruiser Alabama, scourge of Union shipping.

Tribute to a Pioneer

IN BEHALF of the members of the Shipbuilding and Shiprepairing Industry of the United States, I am honored to be one of those privileged to be here today to pay tribute to a man who played an outstanding part in an historical event in American shipping.

Congress has wisely authorized the President of the United States by Proclamation to declare May 22nd of each year as "Maritime Day," and has asked that it be appropriately observed throughout the United States, and we are gathered here to recall and to commemorate the important event of the sailing of the first vessel operated by steam power in trans-oceanic service.

Steam had been used for the propulsion of ships on our rivers, in our harbors and along our coasts for twelve years, but no steam propelled vessel had undertaken to cross the ocean. The great quantities of fuel required for long voyages with the best design of boilers of one hundred and fifteen years ago was such as to deter the operation of steam driven vessels over long distances. There were a few, however, who believed that the steam driven vessel had a place in ocean service as well as on the shorter routes covered by vessels on our rivers and along our coasts.

It was through the initiative of the Rogers family that the Steamship Savannah, originally designed as a sailing vessel, was fitted with steam machinery and started on a trip across the Atlantic on May 22, 1819. The navigator of that ship was Stevens Rogers, at whose grave we are assembled today, and to whom we accord the distinction of being the first to have navigated a steam-driven ship across the ocean with only the sun, the moon, the stars and his sextant upon which to rely and pilot the vessel safely to its destination.

Crossing the Atlantic in the Savannah was looked upon by many as a suicidal venture, and it was freely predicted that the Savannah would prove to be a "steam coffin." There was great difficulty in inducing men to ship aboard for this long trip, and it was only through the reputation of her Captain, Moses Rogers,

and her Navigator, Stevens Rogers, that a sufficient crew was recruited to operate the vessel, and this crew came from what is now the City of New London, the home town of the Rogers family.

It is through the courage and enterprise of men like Stevens Rogers, who have been willing to take a leading part in a new venture that our country has developed in a period of three hundred years to be the greatest nation in the world, and I am happy to be able to play my small part in this important occasion by giving credit to Stevens Rogers and to the City of New London for the constructive part they took in the development of the steamship as a medium of transportation.

H. Gerrish Smith at the grave of Stevens Rogers,
New London, Connecticut, May 29, 1934

In Memoriam— James Rolph, Jr.

IN THE United States, unfortunately very few shipping men enter actively into politics, and fewer still attain the honor and responsibility of holding important public office. James Rolph, Jr., over twenty years mayor of the city of San Francisco, and four years governor of the state of California, was perhaps the most notable exception to this rule that the nation has produced.

Rolph, before entering politics, was the outstanding leader among the younger shipowners, and operators, of San Francisco. As President of the Shipowners' Association of the Pacific Coast, he was active in the settlement of the labor disputes and stabilization of rate structures before the year 1900. He possessed in a very marked degree the confidence and esteem of his political and business associates, the love of his friends, and the respect of all. His passing leaves a large gap among the influential friends of Pacific Coast Shipping. Farewell, Sunny Jim, we shall sorely miss your famous smile.

Our Cover

THE picture on the cover of this issue shows San Francisco Bay as it will look in 1937. Upon an aerial photograph of San Francisco Bay, with Oakland in the background, architects for the San Francisco-Oakland Bay Bridge have drawn in to scale a representation of the world's largest bridge, $8\frac{1}{4}$ miles long, (5 miles over water) which will connect Alameda and San Francisco counties.

The west half of the bridge is a suspension structure comprising twin suspension bridges anchored into a huge concrete monument in the center.

A double-deck tunnel pierces Yerba Buena Island, occupied by Army, Navy, and Lighthouse services, and the double-deck bridge continues over a 1400-foot cantilever span, 5 through truss spans, and 14 deck truss spans before it lands on a fill extending out from the Oakland shore.

At the eastern shore, trestles carry the bridge traffic on to three branches—one for Berkeley, one for Oakland, and one for the business section of Oakland and Alameda.

The piers of this bridge—51 in number—set new

marks on engineering frontiers, going deeper below water than any previous substructure has heretofore been built. Some of these piers go as far as 237 feet below low tide.

The two suspension bridges have 2310-foot main spans.

The lower deck carries two tracks for interurban electric cars and three lanes for heavy trucks, and the upper deck carries a 58-foot highway for six lanes of automobiles.

The bridge is being built for the California Toll Bridge Authority, of which Governor Frank F. Merriam is Chairman, by the State Department of Public Works under Earl Lee Kelly, Director.

C. H. Purcell is Chief Engineer.

Incidentally this picture gives an excellent idea of the pier arrangements on the San Francisco water front and in Oakland's outer harbor.

Twenty-five Years Ago

Pacific Marine Review for July 1909 registered the Shipbuilding returns for the year ended June 30, 1909, as a total of 146 sail and steam vessels, aggregating 21,578 gross tons. Of this total, the Pacific Coast yards were responsible for only 797 gross tons. But better times were said to be coming.

S.S. George Washington, North German Lloyd liner, and then the largest German merchant vessel afloat, had made her initial appearance in New York on June 20.

Results of bids for a 130 foot long wooden steamer for the U. S. Navy Quartermaster's Department on Puget Sound ranged from \$57,000 to \$84,350. Craig of Long Beach, California, put in an alternate bid of \$90,000 for a steel hull. All bids were rejected by Washington.

Secretary of the Navy, G. V. L. Meyer, announced decision to use fuel oil under boilers in power houses of navy yards at Puget Sound and Mare Island, it having been demonstrated that this use at Puget Sound Navy Yard made a saving as compared with cheap Washington coal, of \$21,000 a year.

On June 19 a fire broke out in the upper midship bunker of the Hill liner, Minnesota, wherein were stored over 600 tons of coal. After 12 hours the city fire department assisted by a company of marines got the fire out.

Rio de Janeiro, Brazil, was reported building a three-section floating dock, capable of sustaining 22,000 tons.

Professor George Delius and Mr. Charles Tetro, both of Seattle, had perfected a method of killing all Teredo and Lynoria infesting piles under marine docks, and Mr. Gifford Pinchot, then Forrester U. S. Department of Agriculture, had expressed his gratification at the results. The method consisted of producing free chlorine, free iodine, and free bromide from sea water by an electrical discharge under a tent structure, enclosing the piles to be treated. An extremely attenuated dilution of any of these gasses had been proved fatal to these parasites. These gentlemen also invented a method whereby the bottoms of iron or steel ships could be kept free of rust and of any barnacles or other marine growth. They proposed to eliminate all dry-docking for cleaning and/or painting.

High Pressure Steam Performance

Standard Shipping Company Tankers S. S. G. Harrison Smith and S. S. W. S. Farish Show Notable Economy in Oil Transport

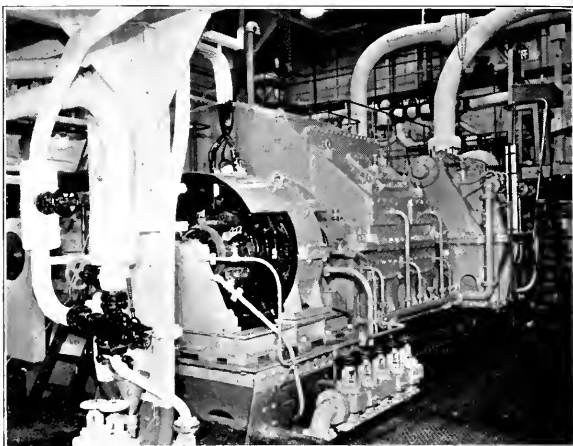
In view of the great interest which has been shown in the performance of the 20,615 deadweight ton high-pressure steam turbine-propelled tankers which were placed in service by the Standard Shipping Company during the closing months of 1930, it is thought that a comprehensive report upon their performance to date will be welcomed by our readers.

Up to the end of December 31, 1933 the G. Harrison Smith had carried 65 cargoes of crude oil and fuel oil totaling 9,377,016 barrels, and her sister vessel, the W. S. Farish, which was the last to be commissioned, had completed 59 trips totaling 8,451,628 barrels of cargo.

These two tank steamers, having a length between perpendiculars of 525 feet, moulded breadth of 74 feet, moulded depth of 40 feet 6 inches and a summer deadweight of 20,615 tons each, have as propulsive power a DeLaval cross-compound turbine with the high and low pressure turbines in series, connected through flexible couplings to the high speed pinions of the double reduction gears.

The turbine unit develops 4000 S.H.P. when operated at normal rated propeller speed of 75 R.P.M. and under steam conditions of 375 pounds per square inch gauge nozzle pressure, 725 degrees Fahrenheit total steam heat, and 28 $\frac{1}{4}$ inches vacuum. The maximum load and speed on the basis of operation under the same steam conditions are 4400 S.H.P. and 77.5 R.P.M. propeller speed. The astern element is mounted in the forward end of the low pressure turbine casing, with full steam flow the astern turbine is capable of exerting a torque equal to about 89% of the full ahead torque, and the revolutions reduce momentarily to about 37.5 upon reversal.

In an emergency either turbine can be operated alone on high pressure steam with the other disconnected. The high pressure turbine is of the impulse type and has 11 pressure stages, each of which is formed by a set of stationary nozzles (set in a diaphragm) and one, or two rows of rotating buckets. The first stage of expansion is effected through two wheels and one diaphragm with a drop of 125 pounds in pressure through the stage. The remaining impulse stages are on single wheels with expansion diaphragms between. The speed of the high pressure turbine at normal load is 5,480 R.P.M. The low pressure turbine, which is of the same type as the high pressure turbine, has 7 stages of expansion and contains both ahead and astern elements



Starboard side of engine room on tanker G. Harrison Smith featuring De Laval gear case and turbine with generator driven off low speed pinion shaft.

which are separated by a common exhaust chamber. The astern turbine has 2 stages of expansion made up of 2 rows of rotating buckets separated by a single row of stationary guide vanes in the first stage and one row of rotating buckets and one expansion diaphragm in the second stage.

The rotor of the L.P. turbine is of the built-up type. The ahead and astern rotor assemblies are rigidly held together by carefully fitted heat-treated, high-grade steel bolts passing through the adjoining sections. The speed of the L.P. turbine at normal load is 4,270 R.P.M.

Each turbine shaft is connected to its respective high speed pinion shaft by means of a DeLaval flexible coupling of the claw type. Each high speed pinion drives a high speed gear having a shaft connected to the shaft of the low speed pinion; the 2 low speed pinions drive the low speed gear, whose shaft is rigidly connected to the propeller shaft.

Steam is supplied by two Babcock and Wilcox straight tube boilers at 420 pounds per square inch working pressure and a total steam temperature at the superheater outlet of 750 degrees Fahrenheit. Each boiler has 5,080 square feet of heating surface, 903 square feet of superheating surface and 3,460 square feet of air heating surface. The superheaters are of the inter-deck type, extending the full width of the boilers and mounted above the fifth row of generating tubes in the first pass of the tube nest. The tubes in the last pass

are made of a high heat resisting chrome nickel steel alloy. The drums are fitted with an internal desuperheater. All steam generated passes through the superheater and only such quantity as is required passes automatically through the desuperheater providing saturated steam for the steam auxiliaries.

Each boiler is fitted with four Todd forced-draft oil-burning fronts with mechanical pressure atomizing burners, in association with the balanced draft system.

Under normal sea operating conditions, all electric power for auxiliaries and lighting is supplied by a sea service generator which is connected to the starboard low speed pinion of the main unit. If the speed of the main turbine propelling unit is reduced to a point unsuited to the operation of this generator, the stop valve of one of the auxiliary turbo-generators is automatically opened, and the electrical load taken up by this unit. The main condenser is hung athwartship underneath the low pressure and astern turbine and mounted on 2 pedestals fitted with counter-balance springs to allow for expansion. The condenser is the first of its type to be used in the merchant service, having tubes rolled at both ends.

There are four feed water heating units in series, viz: first stage heater, after condenser, second stage heater and third stage heater all mounted on the forward engine room bulkhead.

The three stage heaters receive steam bled from the main turbines and, therefore, relieve the main condenser of the duty of condensing this steam, so that a smaller condenser can be used and less water need be circulated through it. However, the outstanding fact about the extraction heaters is that the heat which they absorb in condensing the steam is all returned to the boiler instead of going overboard in the condenser circulating water. The heat thus returned to the boiler represents a large percentage of the heat which was in the same steam when it was received at the turbine throttle, so that the efficiency of the turbine in con-

verting heat into work, so far as this steam is concerned, is exactly 100 per cent, as against in the neighborhood of 20 per cent for the steam which is condensed in the condenser. The use of three stages of bleeder extraction heaters, also known as the regenerative feed heating cycle, should reduce the fuel consumption of the power plant by some 8 per cent.

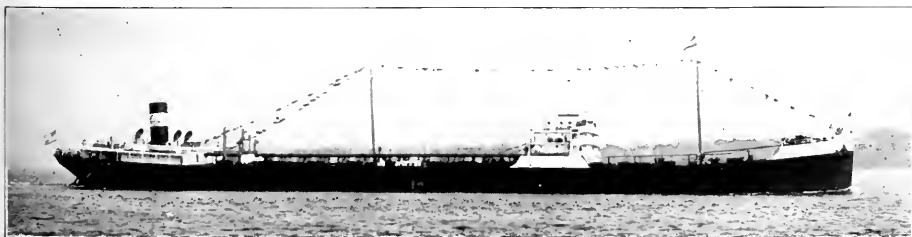
These two vessels have been employed in the crude oil trade from the Gulf to ports north of Hatteras. However, the SS W. S. Farish made one voyage from California with fuel oil. On the Pacific Ocean leg of this voyage her observed steaming distance was 2971 nautical miles on a total consumption of 2012 barrels of fuel oil, at an average speed of 10.27 knots. Average steam pressures were 410 lbs. at the boiler, 400 lbs. at the main throttle, 390 lbs. at high pressure nozzle, 10 lbs. at low pressure nozzle, and 28.1 vacuum. Steam temperature was 755 degrees Fahrenheit at the boiler and 725 degrees Fahrenheit at the throttle.

We also show a summary covering the performance of the W. S. Farish and G. Harrison Smith for the past three years, which indicates the superiority of high pressure steam turbine installations as compared to steam reciprocating propelling units. The pounds of fuel per thousand ton miles of cargo carried during three years has been determined by dividing the total pounds of fuel consumed by the product of the average cargo carried per loaded voyage and the total miles transited figuring in all cases from sea buoy to sea buoy. It is believed that this figure is of interest and value in the practical analysis of tanker operation, having regard to long voyages and to the peculiar navigating and cargo conditions under which many of such vessels operate in the various trades.

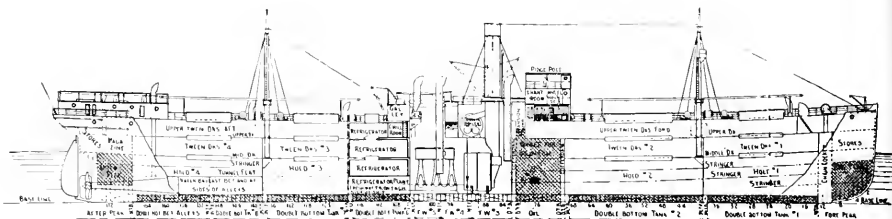
In common with all other tankers of the Standard Oil Company (New Jersey) interests, these vessels are equipped with the most modern safety appliances, crew conveniences and with the very successful Butterworth System of tank cleaning.

Summary of Performance Data 1931-1932-1933

| Vessel | Total Miles At Sea Loaded and Ballast | Total Barrels of Fuel Used at Sea Loaded and Ballast | Average Barrels of Fuel Per Day | | Average Speed in Knots | | Average R.P.M. | | Barrels of Fuel per Mile | | Average Cargo All Purposes | Fuel per Tonneau Lbs. Loaded All Purposes | Fuel in Lbs. Per 1000 Tons Miles Cargo Carried at Sea |
|--------------------|---|--|---------------------------------------|---------|---------------------------|---------|-------------------|---------|-----------------------------|---------|----------------------------------|--|--|
| | | | Loaded | Ballast | Loaded | Ballast | Loaded | Ballast | Loaded | Ballast | | | |
| W. S. Farish | 227,244 | 139,089 | 163.9 | 155.5 | 10.87 | 10.91 | 66.7 | 66.4 | .63 | .605 | 3,801 | .619 | 10.86 |
| G. Harrison Smith | 229,330 | 140,417 | 166.3 | 158.3 | 11.26 | 11.10 | 67.8 | 68.3 | .61 | .59 | 3,940 | .613 | 10.85 |



Standard Shipping Company Tanker S.S. G. Harrison Smith.



Inboard profile of American-Hawaiian line steamer *Nebraskan*, as fitted with fuel oil capacity for the San Francisco-New York run via Straights of Magellan.

First Run—Topped Crudes

The Pioneer Voyage of an American Merchant Steamer Operating on Pacific Coast Oil Fuel

As a matter of historical interest in connection with the present naval investigation of cracked residuum fuels, we are reproducing here some material from the pages of *Pacific Marine Review* for November, 1904. This material was taken from the Naval Liquid Fuel Report, and tells the results achieved by the burning of California first run topped crude oil in the boilers of the American-Hawaiian Steamship Company cargo steamer *Nebraskan*, on her first run using oils. The remarkable results induced the Navy to use this fuel and led to its very wide use in the merchant service. Incidentally, we are proud of the fact that *Pacific Marine Review* for 30 years has consistently advocated the economic improvement of the marine power plant.

Here is the excerpt from the Naval Liquid Fuel Report:

"The *Nebraskan* left New York August 7, 1902, touching at the ports of St. Lucia, British West Indies, and Coronal, Chile, for coal. She reached San Diego in fifty-seven days, five hours, and forty-three minutes. On that voyage 2,267 tons of coal of poor quality were used, and a fireroom crew of fifteen men found necessary. The ship was kept at full speed during the entire voyage.

On the voyage from San Diego to New York, with a greater cargo in her hold, the voyage was completed in fifty-two days, seven hours, and twenty-six minutes. There were consumed in the furnaces on this voyage 8,826 barrels, or 1,260 tons, of California fuel oil. Only

six men were required in the fireroom. Their wages approximated \$50 per month each.

On the outward passage from New York to San Diego the ship steamed 13,280 miles, while on the homeward passage between San Diego and New York the ship steamed 12,760 miles, the increased distance on the outward passage being due to the fact that the ship called at both St. Lucia and Coronal for coal.

Four hundred and fifty-seven tons of measured space for cargo was saved by reason of the oil fuel being of less bulk. The resulting financial gain to the company from all causes was at the rate of \$500 per day. While five days were saved on the eastward journey, it must be remembered that that voyage was 520 miles shorter.

The insurance risks, both on the vessel and on the cargo, were not increased with the installation of liquid-fuel appliances. The underwriters made careful examination of the arrangements for storing the oil fuel, as well as the general character of the oil-burning installation, and after special investigation regarded the equipment as one not constituting an element of danger sufficient to demand higher insurance rates.

In order to detect and collect any leakage of oil a cofferdam had been constructed both forward and aft of the principal fuel-oil bunker. At the end of the journey no leakage of oil had been observed. The oil used was from the California wells, a product which had undergone a light distillation, thus making it less explosive and less harmful to boiler and bunker plates."



All American-Hawaiian steamers now burn fuel oil but their route is much shortened. Here we have S.S. *Arizona* in the Panama Canal.

Cracked Residuum Boiler Fuels

Some Notes on the Results of Naval Research and Merchant Marine Practice in the Efficient Burning of these Comparatively New Fuels

The tremendous demand for gasoline as a motor fuel, combined with the shortage of gasoline supply that was acutely felt about 1920, caused the development of several adaptations of the so-called "cracking" process to Pacific Coast crudes. This process is a distillation at super-atmospheric pressures, and as compared with the atmospheric distillation a much larger proportion of the crude is converted to gasoline, and a great change is effected in the quantity and the physical properties of the residue suitable for boiler fuel.

Almost immediately following this development came the great flow of oils from the Los Angeles basin: deep-drilling, and from 1921 to 1924 there was a surplus which resulted in a large storage of first run topped crudes. Increased demand for gasoline and curtailment of production caused a revival of the cracking process, and a return of much of this storage to the refineries, with the result that for several years past much of the bunker fuel oil sold in the United States, and particularly on the Pacific Coast, has contained a rapidly increasing proportion of cracked residuum.

• Navy Problems

The United States Navy is one of the largest marine customers for fuel oil. During the fiscal year 1933, their requirements were 5,394,826 barrels of boiler fuel, and 88,465 barrels of diesel fuel. A short time back, considerable quantities of cracked residuum began to appear in Naval bunker supplies on the Pacific Coast, causing very rapid plugging of fuel oil heaters. This led to an additional specification requirement that fuel oil supplied the navy should not be heavier than 0.95 specific gravity. This requirement was unsatisfactory to refiners, and the whole question is now being made the subject of a comprehensive series of tests to determine a satisfactory answer on two points:

1—Do any cracked residua make satisfactory naval fuel oils?

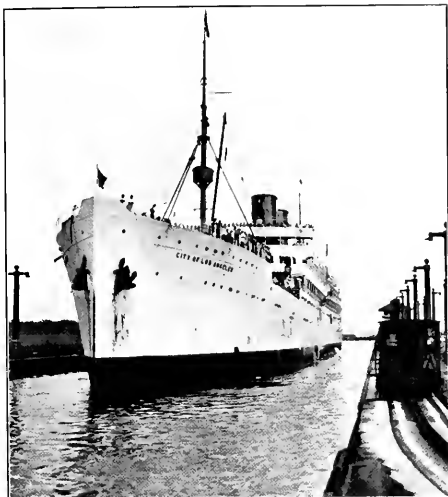
2—If some do, how can bad ones be discovered by test?

Since merchant marine operators have had considerable unsatisfactory experience with cracked residuum in fuel oil, there should be considerable interest in this subject.

In the May issue of the Journal of the American Society of Naval Engineers, there is published a symposium of findings to date, and of general information on this subject. All data and conclusions in this article are derived from that source.

• Pacific Coast Fuel Oils

Until recently, fuel oil on the Pacific Coast has been sold in standard grades, based on A.P.I. gravity, such at 14 degrees plus, 17 degrees. These two grades comprised the bulk of the fuel sold and corresponded



This Pacific coast oil burner, the popular S.S. City of Los Angeles, is now being outfitted by the Matson Navigation Company for a South Sea cruise. She is here shown in a Panama lock.

roughly to grades 5 and 6 of the Bureau of Standards, and were superior to Bunker B and Bunker C of the U. S. Navy Specifications, especially from the standpoint of viscosity. Typical straight run (uncracked) fuels, corresponding to these grades, showed approximately the following properties:

| | 17 plus | 14 plus |
|--|---------|---------|
| Gravity A.P.I. degrees..... | 18.2 | 14.9 |
| Flash | 220 | 250 |
| Viscosity (Say. Furol) at 122 deg. F. | 56 | 260 |
| Sand W. (by Centrifuge) per cent.... | 0.1 | 0.1 |

The average California crude after topping runs about 17 degrees A.P.I. gravity, and under modern cracking operations yields nearly half its volume in satisfactory motor fuel. The residuum boiler fuels from cracking 17 degree and 14 degree boiler fuels will show properties about as follows:

| | | |
|--|------|-----|
| Gravity A.P.I. degrees..... | 11.2 | 9.3 |
| Flash | 260 | 270 |
| Viscosity (Say. Furol) at 122 F. | 54 | 146 |
| Sand W. (by Centrifuge) per cent. | 0.5 | 0.5 |

It will be noted that there is a marked change in the gravity viscosity ratio, and that we have here relatively heavy fuels with comparatively low viscosity. Note that one of these fuels is heavier than water. Water would float on top of oil whose A.P.I. gravity was 9.3.



Heralded as the world's most economical steamers, the four Grace Santa liners are operating on California cracked residuum boiler fuels. We show here the Santa Rosa.

In cases where cracked residuum is not suitable for boiler fuel, it may be blended with distillates or its viscosity may be reduced by heating under pressure (the so-called viscosity breaking process).

Due to its higher specific weight, a given volume of cracked residuum fuel oil contains more B.T.U. than does topped crude fuel of similar grade, and this is a decided advantage for marine use. However, some of these cracked residuum fuels are heavier than water, and most of them approach closely a specific gravity of one. Since practically all oil-burning systems afloat are designed to handle oils lighter than water, and to have water settle and be drained off from the bottom, it is apparent that heavier than water fuels should be so blended as to make them suitable for such systems.

If sufficient advantage can be shown for the heavier fuel, it would be comparatively simple to change the various oil handling systems on board ship, so that oil would be taken from the bottoms of tanks and water contamination removed from the top.

In this connection, it should be noted that the Navy investigations reveal a tendency of fuel oils with a

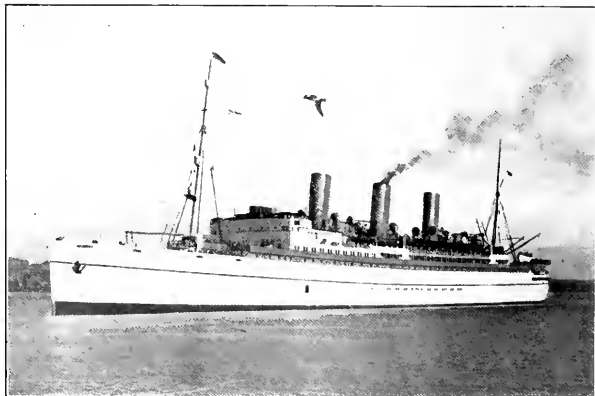
density nearly that of water to hold water in an emulsion. "The water on separation would result in the formation of small globules throughout the oil. This will cause much trouble when the oil is heated for atomization, as the unequal distribution of water in the oil will cause an uneven fire, or extinguish the fire completely." These emulsions were found to be more stable in oils with higher nitrogen content.

● Naval Conclusions

In the practical tests in burning cracked residuum fuels, the Navy investigators found as follows:

1—that for pumping, an average oil fuel temperature of 85 degrees F. was ample to give satisfactory results. The highest temperature necessary in the samples tested was 110 degrees F. and the lowest 43 degrees F.;

2—that for pre-atomization, heating to reduce samples of twenty cracked fuel oils to a viscosity of 150 S.S.U., the average temperature requirement was 178 degrees F. Temperatures for the different samples



The white trans-Pacific flyers of the Canadian Pacific Steamship Company operating out of Vancouver, B.C. run on cracked residuum fuel oil. S.S. Empress of Canada is depicted here.

ranged from 131 degrees F. to 213 degrees F. Four of the twenty samples tested showed carbonaceous deposits in the heater at viscosities from 100 to 150 S.S.U.:

3—that 50 per cent of the cracked fuel oils under test showed a tendency to deposit carbonaceous material on the face of the atomizer. With most of these fuels, this deposit necessitated frequent cleaning to preserve efficient combustion;

4—that slagging of furnace refractories is no greater than would occur from firing with normal topped bunker fuel oil;

5—that the carbon content of stack gasses is much greater with cracked fuels than with the non-cracked oils. In this respect, the burning of cracked oils is analogous to burning of colloidal fuel. This stack loss is a minimum for samples tested when atomization takes place at a viscosity of 150 S.S.U. It is probable that with vessels having older types of fuel-oil burning equipment, there will be considerable deposit of carbonaceous material on the decks, in the stacks, and in the tube banks, uptakes, and drums of the boilers. Smokeless conditions will be very difficult to obtain, and the smoke will not be composed of finely divided soot, but will consist of a relatively smaller number of comparatively larger particles of "pumice or slag-like spiny particles of carbon and asphalt, or globular 'sinospheres'".

● Some Practical Suggestions

It will be evident to the merchant marine engineer that one of the prime requisites for handling these cracked residuum fuels is ample capacity in the pre-atomization heating coils so as to avoid local overheating. Another requisite is to provide an atomizer that will give proper atomization at a viscosity corresponding to a temperature from 20 to 40 degrees lower than the flash point of the oil.

A. E. Becker of the Standard Oil Development Company gives some practical suggestions:

1—The heat transfer rate for pre-atomization heaters working on cracked oil fuels should preferably be 20, and not greater than 30 B.T.U., per hour per square foot.

2—As compared to proper setting for burning topped oil fuels, the burner should be set so that the tip of

the nozzle will not be so deep in the furnace. This will avoid trouble in coking of tips. Complete combustion with cracked fuel requires a longer flame travel.

● The Outlook in Fuel Oil

The present outlook for Pacific Coast fuels is tersely stated as follows by J. B. Terry of the Standard Oil Company of California:

"The status of the fuel oil situation is such that there is no present indication of any possibility of returning to the old type of straight run residuum, and it is only logical to predict that future production of residual fuels will contain increasingly large proportions of cracked stock, and that the physical properties shown herewith for cracked residual oils are typical of fuels which will be marketed by refiners on the Pacific Coast. This condition is, of course, brought about by the increasing demand for gasoline to which is added the necessity for the better utilization of our crude resources."

On the Atlantic Coast, there has been a somewhat longer experience with cracked oil fuels, and J. B. Rather of the Socony-Vacuum Corporation contributes the following words of comfort for the future:

"Some degree of prejudice was early built up against the use of heavy cracked fuel oils. Difficulties experienced with sediment separation in fuel tanks and burner troubles caused considerable dissatisfaction. . . . The rapidly increasing demand in recent years has led to fuller appreciation of the position cracked fuels might assume on the market. The increasing fund of knowledge concerning cracking reactions, accumulated through experience, has indicated the processing factors that affect fuel oil quality. Considerable thought has been given this feature in the design of modern cracking equipment. It may be truly said that properly processed cracked fuels today are in all respects the equal of uncracked fuels of similar classification.

"The history of the petroleum industry has been one of continual change, and improvement, both in quality and yield of useful products recovered from crude oil. It therefore may be safely predicted that the future demands of the consumer will be met by improved technique and processes designed for the adequate economic and satisfactory supply of processed petroleum products."



S.S. Lurline, one of three sisters in the Matson fleet, is making remarkably economical runs with Pacific Coast cracked residuum fuel oil.

Some New Factors in International Shipping Policies

A Survey of the Nationalistic Trends in World Trade and Trans-Oceanic Cargo Competition

Shipping the world over is in a rather chaotic condition. Wherever shipping men get together to discuss international relations and world trade routes, there is always voiced the conviction that nothing will cure the shipping evils of the world but a return to greater freedom of international commerce, and a rationalization of world shipping in international trade routes. Conversely, wherever nationalistic groups of politicians get together with shipping men and experts, the talk seems to be largely on subsidy plans for building up greater merchant marines and in many cases it is proposed that these subsidy funds be obtained by increase of tariffs, thereby automatically decreasing the pay load for the increased tonnage.

The United States, every maritime nation in Europe, the Union of South Africa, Japan, and several of the nations of Latin America are all in this merchant marine picture, with national aspirations to have a merchant marine adequate to take care of the actual needs of their own coastwise and international commerce.

The nationalistic point of view always includes the thought of the merchant marine as a naval auxiliary which leads to the very frequent proposal that all subsidies be based on the laying up of old tonnage and the building of new, up-to-date ships, faster and much more costly than is warranted by trade requirements. This type of proposal is rampant in the United States, in Italy, in Japan, and in all countries which are building up a merchant marine on a subsidy basis. Such proposals always bring protest and opposition from the conservative ship-owner who sees in them an element destructive of his present investment.

● Non Subsidy Fleets

Now the great bulk of the tonnage of the world's merchant marines is still unsubsidized. In our own United States merchant marine only a small fraction of the total tonnage is under direct operating subsidy. The British Empire, Norway, Sweden, Holland, Denmark and Greece are committed to a policy of no direct operating subsidies, although in special cases very favorable loans for shipbuilding costs and certain concessions amount to a very substantial governmental assistance. These six nations control over half of the present world tonnage. Certain of the wiser heads in the shipping conferences of Northern Europe have been suggesting an international scrapping program as the only economic way out of the shipping muddle.



A Japanese cargo liner discharging Pacific Coast cargo to sampans in an Asiatic port.

At a recent meeting of the Cardiff and Bristol Channel Shipowners Association, a British shipowner, Mr. J.E.E. Jones, brought forward a very definite proposal that shipowners of the six non-subsidy countries mentioned above make arrangements to buy up the surplus obsolete tonnage and either sink these ships or sell them for cash. He figured that to cure matters, it would be necessary to get rid of about 15 million tons dead weight capacity, and that the cost would be about 90 million dollars. It was proposed that this be divided among these countries pro rata according to their present tonnage, which would make Great Britain's share about 55 million dollars. Shipowning Associations would arrange loans with their respective governments for this purpose.

Meanwhile the British Board of Trade is formulating an all British shipping policy which will be submitted to the British Dominions for joint approval and endorsement. It is thought that this policy will be a combination of government aid and preferential treatment particularly as regards cargo vessels.

Shipping freights all over the world are still at a very low mark. The Chamber of Shipping Index number for April 1934 was 17.69, an increase of 2.49 per cent from April 1933, but a decrease of 3.12 per cent from March 1934. As compared with the index number for the year 1913, the month of April shows a decrease of 24.40 per cent.

While all non-subsidy shipowners are carefully fig-

uring the future, and trying to devise ways and means of absorbing idle tonnage, many of the other maritime nations are building fleets of sea-going merchant vessels by the direct subsidy method. A very recent effort along this line is that of France.

● New French Subsidy Bill

On May 17, 1934, the French Chamber of Deputies passed the Subsidy Bill by a vote of 575 for the measure to 10 against. This bill carries the following aids to shipping:

The State pays 30 per cent of crew's wages on vessels up to 500 tons gross measurement; 20 per cent of crew's wages on vessels from 500 to 1000 tons gross measurement; and 10 per cent of crew's wages on vessels above 1000 gross tons measurement. It should be noted in this connection that France is the only country outside of Soviet Russia that has by statutory provision introduced an eight hour day for all classes of employees aboard ship. Wages as a basis for subsidy reckoning includes food allowance, but not overtime or other sundry allowances.

In addition to this wage bonus, the state will pay the following operating subsidy per day for steamers: 19 centimes per gross ton for all vessels under 3000 gross tons; 16 centimes per ton for vessels between 3000 and 5000 gross tons; 13 centimes per ton for vessels between 5000 and 10,000 gross tons; and 9 centimes per ton for vessels above 10,000 gross tons. This per diem payment will be subject to a bonus for speed ranging from a 10 per cent increase for vessels exceeding 12 knots on trial to a 120 per cent increase for vessels exceeding 23 knots.

For certain trades the speed and tonnage subsidy is affected by a diminishing or an increasing factor depending on the protected or the especially competitive conditions. Thus it is decreased for the national coastwise trade and the trade with Tunis and Algeria, and increased for the South American and West African trades.

Shipowners who receive a million francs or more in a year are required to set aside 20 per cent of this subsidy to build new tonnage in French shipyards. Unless orders for new ships are forthcoming within five years

the subsidy must be refunded. Under certain conditions these shipbuilding orders may be placed abroad.

Funds for these subsidies are to be provided by an increase in custom duty rates not to exceed 3 per cent, and an increase in the statistical duty rate not to exceed 80 per cent. Statistical duty is the very small rate tax applied by the French customs on all imports and exports without exception, and is figured to pay the expense of Customs.

It is expected that the subsidy plan will entail the expenditure of 150 million francs annually. Should the increase in duties provide more than this sum, they will be proportionately reduced. Should they provide less than 150 million, then the subsidy rates will be reduced.

The French law is to hold for two years, with the option of being extended for another two years by decree if found expedient. The subsidy is to be granted only to such owners as have wages or articles determined by agreement with unions or by arbitration through the Ministry of Marine. It is also specified that all firms receiving subsidy shall, inside of ninety days, reach a statutory agreement with all members of their shore staffs and dock and office workers.

All subsidies on wages and on tonnage are subject to the ship operating on an average minimum daily mileage of from 35 to 90 according to speed and tonnage. Subsidies are granted only to French companies which means that the Managing Director, the Chairman, and the majority of the Board of Directors must be French.

So far as we are able to determine from comparative figures on a few ships, the cost of operation, including investment cost of French ships today, would be about 40 per cent lower than that of American vessels. This subsidy will therefore put the French ships in a very favorable competitive position. The present total gross tonnage of the French Merchant Marine is about one fourth of the total gross tonnage of the American merchant marine. On this total basis, France is paying nearly twice as much as America in subsidy per gross ton. On the real basis of the American Postal Contracts being applied only on foreign trade routes, American subsidy per gross ton is considerably larger than French subsidies in those trades, but not nearly large enough to absorb the operating differential that French subsidies give French ships in those trades.

● Italian Subsidies

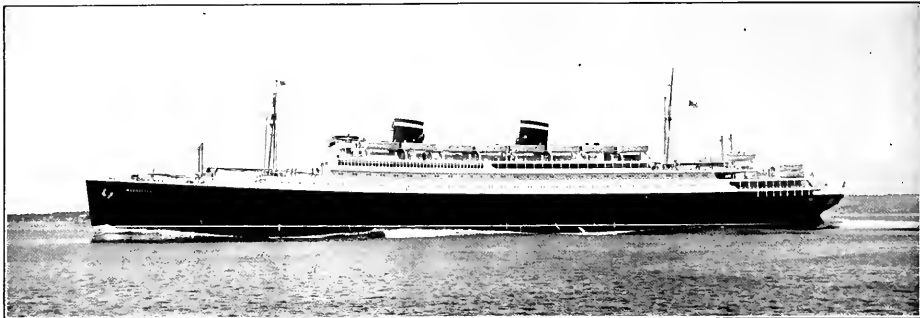
After twelve years as Minister of Communications and chief leader of Italian Shipping and Shipbuilding, Count Ciano Di Cortellazzo left this position on May 1 to take the chair as President of the Italian Parliament. Count Ciano has done a marvellous piece of work for the Italian Merchant Marine under the Fascisti regime. When he assumed leadership, Italy was practically off the merchant marine map. Today she may claim the blue ribbon of the North Atlantic, with passenger and cargo liners equal to any afloat.

Under the shipping policies established by Ciano several forms of government assistance are in vogue: first, direct grants for shipbuilding on special types suitable for naval auxiliaries; second, favorable government loans on building costs of types desirable for

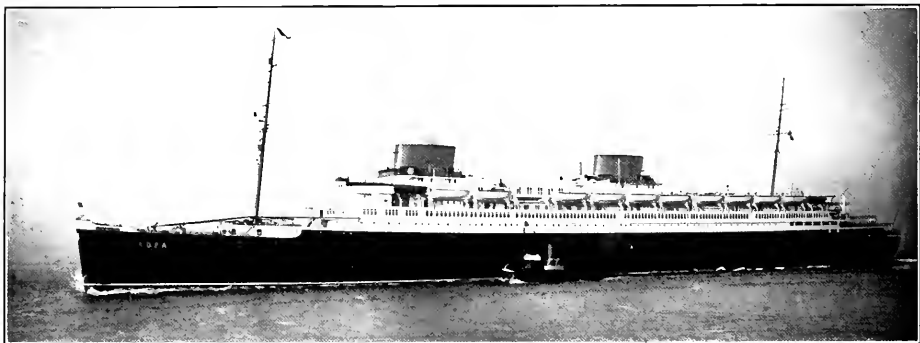


Ships of the world compete for lumber cargoes at the ports of the Pacific northwest. Here are a few loading at Gray's Harbor, Washington.

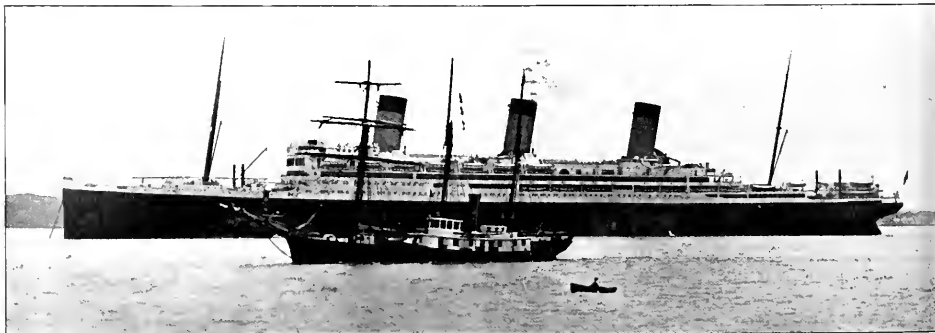
Twenty Years Progress in Efficiency



S.S. Manhattan, fastest of the cabin class liners, equipped with a very economical steam plant, is making money for her owners.



S.S. Europa and her sister S.S. Bremen get twice the horsepower of the Majestic on less weight of machinery and less fuel consumption.



British liner Majestic and her American sister Leviathan are hopelessly outclassed in profitable operation by either the German Europa or the American Manhattan shown above.

colonial expansion; and third, operating subsidies on a diminishing scale, adjusted as lines became established and show net operating revenue.

According to recently published government statistics, the payment to subsidized steamship lines by the Italian treasury in 1933 was as follows: total amount of subsidy—263,190,000 lire; total number of subsidized ships, 224; total gross tonnage, 774,915; total mileage covered, 7,142,140; and age of ships, one month to 14 years.

A set of figures that came to our attention a few years back, indicates that Italy was then paying 20 per cent more total subsidy for the operation of 53 per cent less gross tonnage and 44 per cent less mileage.

During the past three years, Italy has financed the scrapping of 500,000 gross tons of obsolete ships.

The Fascist regime in Italy has very recently announced its decision to use the entire 70,000 ton displacement allowed to Italy under the world naval agreement, in a building program of two monster first line battleships of 35,000 tons each. These two vessels, about to be laid down, will be finished before 1940.

● The United States

The American merchant marine is still operating under the Act of 1928, which grants favorable loans for ship construction and favorable postal contracts for specified ships on specified foreign trade routes, maintaining specified schedules. This act has been subject to much European criticism ever since it was passed. The only recent change is the ill advised publicity emanating from the Senatorial investigation of mail contracts under Senator Black. This publicity let loose a lot of specious half truths that were quickly taken up and used by politicians in foreign parliaments in order to bolster their schemes for raising old subsidies or creating new grants to shipping. Thus we hear solemn debate in the British House of Lords over the payment of fifty dollars per letter for mail carried in American mail steamers to British Dominions, or we read in reputable British trade papers, "It is now stated by Senator Black that the expenditure by the state of 1000 million dollars in subsidies to shipping since 1928 has, as administered, done little or nothing to accomplish the desired results."

The purpose of the present administration is declared to be the establishment of a suitable subsidy to maintain an adequate American merchant marine in overseas shipping. The attitude of European shipowners toward this idea seems to be that it is a nuisance, more or less temporary in character because "American operating costs are prohibitive" in international competition. America now operates slightly under 16 per cent of the world's merchant tonnage.

Meanwhile, a highly significant fact is impressing itself strongly on the British shipping mind—the fact that tonnage of nations other than British and American is getting an increasingly large share of the world's international cargo. So far as American international cargo is concerned, both America and Britain are losing out rapidly to the group classified in American statistics as "Foreign tonnage other than British."

With all this subsidized international competition there are combined the effects of the depression—shipowners the world over operating with scant cargoes at red ink rates. Shippers in all countries find themselves checked and hedged and blocked by mounting tariffs, restrictions and embargoes. And just when there began to percolate through all this gloom a little ray of sunshine, in the shape of world industrial and commercial recovery, another cloud bank appeared on the horizon—threatening the whole shipping structure by introducing labor troubles.

The Pacific Coast stevedores' strike now in operation for six weeks is tying up shipping at the point where its picture has been brightest. As we write, ninety vessels are lying idle at the docks, or at anchor, in San Francisco Bay. Proportionate amounts of tonnage are tied up at Los Angeles, Portland, and Seattle. Millions are being lost by shippers, shipowners, strikers, and the general public. Millions of invested capital that should be earning its keep, are tied up in enforced idleness. The matters in dispute could just as easily be settled without a strike—in fact, they will have to be settled by arbitration—strike or no strike. At the same time, disturbing news comes of labor troubles brewing on the other coasts of the United States, and in certain parts of Europe.

● Japanese Conditions

Japan, in company with many other nations, is entering into reciprocal trade treaties with several of her competitors. The latest development along this line is a Dutch-Japanese agreement now in process, whereby Japan agrees to import an increased quantity of Dutch East Indies products, such as sugar and rubber, while the Dutch in turn guarantee import quotas of Japanese textiles, cement, beer and general merchandise.

The Japanese merchant marine is working under a subsidy for special ships and special routes. Recent grants under this subsidy have involved the building of fast modern tonnage, and the scrapping of old tonnage. In very recent years this subsidized Japanese merchant fleet has been flooding the world's markets with textiles and manufactured goods of fair quality and very low price, produced under wage and working conditions impossible in Europe and America.

All the world except the United States is adopting diesel propulsion for medium sized liners such as the M.S. Aorangi, shown here.



A Century of Growth

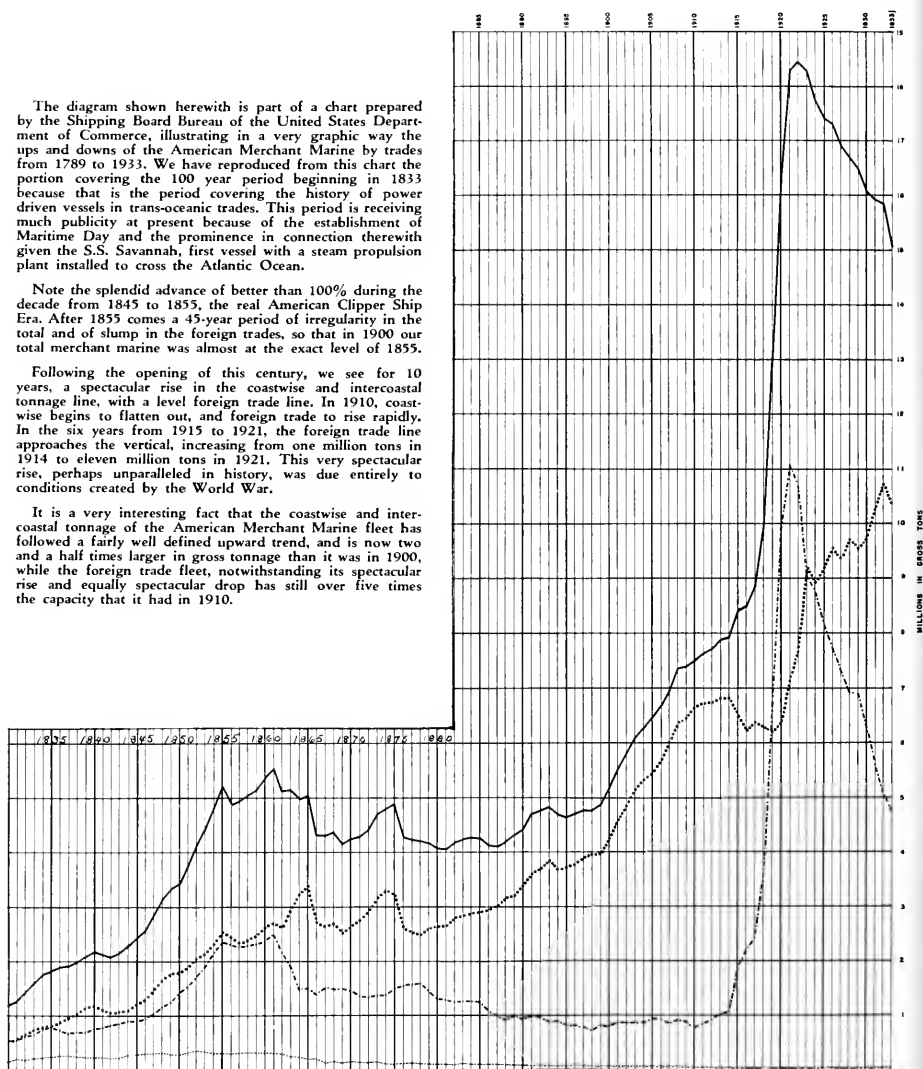
American Documented Merchant Marine

The diagram shown herewith is part of a chart prepared by the Shipping Board Bureau of the United States Department of Commerce, illustrating in a very graphic way the ups and downs of the American Merchant Marine by trades from 1789 to 1933. We have reproduced from this chart the portion covering the 100 year period beginning in 1833 because that is the period covering the history of power driven vessels in trans-oceanic trades. This period is receiving much publicity at present because of the establishment of Maritime Day and the prominence in connection therewith given the S.S. Savannah, first vessel with a steam propulsion plant installed to cross the Atlantic Ocean.

Note the splendid advance of better than 100% during the decade from 1845 to 1855, the real American Clipper Ship Era. After 1855 comes a 45-year period of irregularity in the total and of slump in the foreign trades, so that in 1900 our total merchant marine was almost at the exact level of 1855.

Following the opening of this century, we see for 10 years, a spectacular rise in the coastwise and intercoastal tonnage line, with a level foreign trade line. In 1910, coastwise begins to flatten out, and foreign trade to rise rapidly. In the six years from 1915 to 1921, the foreign trade line approaches the vertical, increasing from one million tons in 1914 to eleven million tons in 1921. This very spectacular rise, perhaps unparalleled in history, was due entirely to conditions created by the World War.

It is a very interesting fact that the coastwise and intercoastal tonnage of the American Merchant Marine fleet has followed a fairly well defined upward trend, and is now two and a half times larger in gross tonnage than it was in 1900, while the foreign trade fleet, notwithstanding its spectacular rise and equally spectacular drop has still over five times the capacity that it had in 1910.



Upper black line shows gross tonnage of total merchant marine. Heavy dotted line shows tonnage in coastwise and intercoastal trade. Dash-dot line shows foreign trade. Lower dotted line shows cod, mackerel and whale fisheries.

Pacific Marine Book Reviews

*Realizing that Many a Mariner—Ship Operator—Ship Owner or Engineer
like Chaucer's Clerk "Would liefer have at his beddes head,
Twenty bookes clad in black or red"*

We Suggest from Former Reviews

THE SAGA OF THE COMSTOCK LODGE. By George D. Lyman. 400 pages bound in blue buckram with gold stampings—25 illustrations. Published by Charles Scribner's Sons, New York. Price \$3.50 net.

This is the story of the Washoe range, Sun Mountain and the original Comstock boom, by the author of "John Marsh, Pioneer." The book was written in answer to a challenging sentence by Arthur McEwen of the San Francisco Examiner. McEwen declared, "The life of the Comstock in the old days has never been written so that those who did not share it can understand; it never can be so written, for to be life-life, all would have to be set down, and that is a feat beyond mortal pen." To the author of this book, it seemed "that having been saturated from infancy on the folk lore of Washoe, he could recapture the spirit behind it."

After a prodigious amount of research in old files he has produced a book which does just that—introducing us to "Old Virginny," Henry Thomas Paige Comstock, Artemus Ward, Mark Twain, Jim Fair, Lemuel Bowers, John Mackay, Adolph Sutro and many others. It is good reading, and should be much enjoyed by all who are fond of pioneering days.

The story stops in 1865 and does not cover the later and larger developments of the second Comstock boom, after Sutro had finished his famous tunnel to drain the lower workings of the lode. These have been amply covered in many other books. The Saga of the Comstock Lode gives an authentic picture of the pioneers of Washoe.

A RECORD OF AMERICAN YACHTS

Coincident with the issue of the 32d edition of the American Yacht Register, Lloyd's Register of Ship-

ping by Thomas Wood . . . Oxford University Press.

Small Boat Building by Edwin Monk . . . Charles Scribner's Sons.

Adventure's a Wench by Charles Veil . . . Wm. Morrow & Co., Inc.

I Went to Pitt College by Lauren Gilfillan . . . Viking Press.

Whatever Goes Up by George C. Tyler . . . Bobbs-Merrill Company.

Who Rules America? by John McConaughy . . . Longman's Green & Company.

ping will celebrate this year its 100th anniversary. The origin of Lloyd's dates back much further than this, to the Coffee House of Edward Lloyd in Tower Street, London, at least as early as 1688; a meeting place of merchants and shipping men from which grew the two great organizations now bearing the name of Lloyd.

Of the 5338 yachts listed in the new Register the oldest is still the famous schooner America which won the 100 Guinea trophy of the Royal Yacht Squadron 83 years ago. The youngest, launched just as the Register comes from the press, is the cutter Rainbow, built for the 15th contest, in defense of what is now known as the America's Cup. Next in point of age is the sloop Annie, modelled by Capt. Bob Fish in 1861. Taken to San Francisco on the deck of the great ship Three Brothers in 1870 the old yacht is still in regular use on San Francisco Bay. Another veteran is the sloop Viola, built in New Haven in 1867 and still seen about Long Island Sound. Next in point of age is the yawl AEolus, originally a sloop, designed by Robert Steuler for the late Robert K. McMurray. Built in 1880 by "Sammy" Ayres, and under the careful eyes of her owner, with every joint set in white lead, the old yacht, with no

rebuilding, is still seen in New York waters.

A famous yacht, of American origin but appearing in the Register for the first time this year, is Aldebaran, originally the steel schooner Meteor III, designed by A. Cary Smith for the former Emperor of Germany and built at Shooter's Island in 1902. After many vicissitudes and changes of name and ownership she is now owned by Mr. Francis Taylor and hails from Newport, R. I.

Of the approximately 300 additions to the Register the majority are power craft, from 70 ft. downward, cruisers of various sizes; with several additions to the motor sailer division. The new Ocean-Racing Rule of the Cruising Club of America has produced a fine craft, Edlu, designed by Sparkman & Stephens, Inc., somewhat larger than Dorade and a little wider in proportion. The same designers have turned out an ocean-racing yacht, Stormy Weather, for Mr. Philip Le Boutillier to take the place of his Alsumar, and at the same time have designed a new Alsumar of 50 ft. l.wl., an auxiliary, for Mr. Dave H. Morris, Jr., original owner of the name. The renewal of interest in International Racing in the 6-Meter Class brings out four new yachts, Jack, designed by Sparkman & Stephens, Inc., for Mr. J. Seward Johnson, owner of the older Jill; Swallow, by the same designers, for a Seawanhaka Corinthian Yacht Club Syndicate; while Mr. Herman F. Whiton, who has been so successful in the class in former years, has designed a new yacht, Erne, for his own use. These three yachts have been built by H. B. Nevins, Inc., of City Island, N. Y. The fourth 6 metre "Challenge," designed by A. E. Luders for Mr. Paul V. Shields, is now building by The Luders Marine Construction Co. at Stamford, Conn.

The flag section of the Register
(Please turn to Page 221)

The Beachcomber's Loot



Some Marvelous Sea Lore Gathered Where Found, Without Regard to Authority. Only the Ink and Paper were Ours and Those are Now Yours. Quien Sabe?

For some time past the editor has gathered from many sources rather interesting sea haps. Some of these come from contemporaries, some from personal correspondence, some possibly from imagination. We propose to publish them without credit to any of these sources. We welcome any corrections or discussions and will be glad to publish such but not at space rates. Nix. We can prove ourselves wrong easier than we can dig up five simoleons. Are you credulous or incredulous? Who cares!

Runaway Smack Columbine: On January 3, 1886, the smack Columbine left on her regular run with freight, mail and passengers from Greetness in the Shetlands to Lerwick. There were aboard, skipper, mate, one A.B., and one passenger—an elderly lady, Elizabeth Monat, going to Lerwick for medical attention.

The wind was strong from S.S.E. with snow squalls, and the smack, running under double reefed mainsail, with the wind on starboard quarter. The passenger was lying in her bunk in the cabin, when, about an hour out from port, a sudden squall carried away the main sheet, and the swing of the boom knocked the skipper and mate overboard. The mate was pulled in by the sailor, and these two seeing the skipper struggling in the sea put out the boat, after hauling the staysail to windward.

They pulled to the spot where the skipper had been,

but he had disappeared. Turning again to the smack they discovered that she was making away full and by at some speed. Finding a stern chase hopeless they made for the nearest landing, some three miles off. Lerwick was notified, and a collier, the Gypsy, put out, followed by the steamer Earl of Zealand, as soon as she could raise steam. After twenty-four hours stormy search, the latter returned to Lerwick, reporting no trace of Columbine, and the smack was given up as lost.

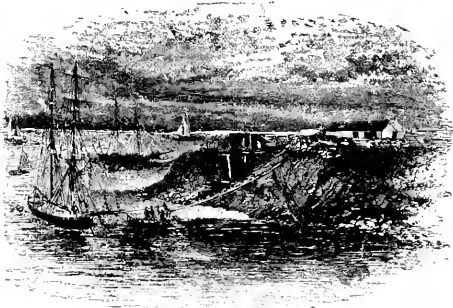
Eight days thereafter, the people of the island of Lepsoe, twelve miles north of Aalesund, Norway, were amazed to see a small vessel with a ragged foresail drifting before the wind to the only sandy beach on the island. With no hand at the helm, she came safely through the breakers and landed on the beach.

In her cabin the fisherman found the old lady in the last stages of exhaustion. She had subsisted eight days on two biscuits and a quart of milk which she had brought for refreshment on the three-hour voyage.

Miss Monat became a popular heroine, and with the gifts of money showered on her by many noted people she was able to live another thirty years at Greetness in comparative luxury.



Primitive Boat Building. In the Bahrien Islands, headquarters of the ancient Persian Gulf pearl fishery, there dwell an honorable guild of boat-builders, who still build their sea-worthy craft in much the same way that was practiced by the early Egyptians and Phoenicians in the pioneer days of navigation in the Mediterranean. In fact, that "navy of ships" which King Solomon "built at Egendi to fetch the gold from his mines" was probably fabricated by the ancestors of these Bahrien boat-builders.



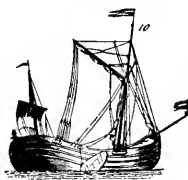
Quite recently a modern launch was transported to these islands for the use of an American firm having business there. Its hull was badly battered on the way out, and was found to be unfit for navigation. The native boat-builders undertook to build a similar hull and install the motor therein. The new hull was built of mulberry wood scarfed and spliced from rather short pieces.

All bends are either the natural crooks of the tree or are slowly winlashed into place and fastened. The fastenings are nails or spikes, each being a special hand-forged job in excellent wrought iron. Holes are drilled for these spikes with a fiddle bow drill, the holes being a drive fit.

Wrought iron washers are fitted on each end of the spike which is clinched over the inner washer.

Fitting of timbers is done with a hand adz. The joint ends are roughly shaped to fit, then are blued and scraped to a perfect joint in much the same way that a babbitt bearing is fitted. Most of the smaller boats in use are built up out of odds and ends of timber in this way and it is surprising how seaworthy these craft are.

Timber is scarce, wages are small, time is plentiful, labor is expert, so the Arab boat builder patiently gathers up a few sticks and joins them together to make boat timbers, and molds these into the strange hull shapes for which the infidel pays him in useful cash. Kismet.



An Able Bodied Ship's Cat. The following yarn as spun by Captain Charles Kragh, of Newcastle on Tyne, appeared in a recent number of the *International Weekly*:

During the year 1913, said Captain Kragh, I found myself in command of the S.S. "Claverley," and, on August 13th, my ship lay alongside the United States Navy Wharf at Bremerton (Wash.). Our cat had a litter of kittens, lodged in a box in the steward's store-room.

Shortly after leaving the wharf, we missed our cat, which had gone on shore, probably to hunt for mice. The steward took upon himself the duty of foster-parent and brought up the kittens with the aid of condensed milk applied through the filler of a fountain pen. On January 21, 1914, on the River Shannon, a grain elevator came along-side to lighten my ship and enable me to float up to Limerick.

Out of this elevator walked the ship's cat and made a bee-line for the box in the steward's store-room where she had left her babies 161 days before.

Now you will ask how did this phenomenon happen.—Quite easy.

My ship proceeded to Portland, Oregon, where she loaded a cargo of wheat for Limerick. We sailed from Portland on September 13th, 1913. On October 28th I had the misfortune to drift aground near Green Point, Phatagonean Channel, during a snow-storm. I salvaged the ship and left Punta-Arenas on December 12th and arrived at Limerick, as stated above, on January 21st, 1914.

One of the Nitrate-Producers' Syndicate's ships followed me at the Naval Wharf at Bremerton, where my cat boarded her. The ship was chartered on precisely the same business as myself, and owing to the misfortune of being delayed in the Magellan Straits this ship, with my cat on board, passed me and arrived at Limerick before my ship.

Being too deep, she was obliged to use the same grain elevator as I used subsequently. My cat deserted the ship and took up her home on the elevator, from which she, on January 21, 1914, returned to my ship and her family.

*That I might hear the thunder of the crowding waves
Upon the rocks;*

*That I might hear the roar by the side of the church
Of the surrounding sea;*

*That I might see its noble flocks
Over the watery ocean.*

—Hymn of St. Colum
(translated from the Irish).



*You will never enjoy the world aright till the sea itself
floweth in your veins; till you are clothed with the heavens
and crowned with the stars.—Traherne.*



Marine Equipment

NEW DIESEL ENGINE ~ AIR-ACETYLENE FLAME
GAS 3-TON TRUCK ~ ELECTROLYSIS ELIMINATOR

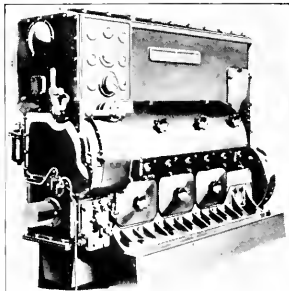
New Opposed Piston Diesel Engine

A new opposed piston diesel is being shown for the first time at the Fairbanks-Morse exhibit in the General Exhibits building of the 1934 "A Century of Progress."

Industry, of course, continually demands improvements that will result in better dollars and cents efficiency of the equipment it must use. In the case of prime movers this means better fuel economy, less maintenance, less supervision and lighter weight where this is a factor. An endeavor to meet these demands has brought forth this engine. Weight has been brought down to 20-lb. per horsepower, and at the same time improved scavenging and a greater virtual stroke-bore ratio has resulted in improved combustion efficiency. Construction has been greatly simplified by a substantial reduction in the number of parts.

Because of their light weight and compact yet sturdy construction, these engines are eminently suited for locomotive work, particularly for service in the light-weight, high-speed, streamline trains, as well as rail cars now being adopted by the railroads. These same characteristics make this engine particularly adapted to mobile industrial equipment such as dredges, draglines, excavators, etc., and to all classes of marine work, including tugs, towboats, lighters, cargo and passenger vessels as well as pleasure craft.

Engines of the opposed piston type are inherently balanced because the reaction forces of the two pistons in the cylinder oppose and tend to counteract each other. This leads to higher rotative and piston speeds with a consequent reduction in weight.



Fairbanks-Morse opposed piston lightweight high speed diesel engine.

Several important design features greatly increase the effectiveness of this engine. It has two short, large diameter crank shafts with a synchronizing connection which makes for compact construction. Control features are unusual as for the first time the three functions of regulating injection timing, pressure and quantity are centered in a single lever. Response is rapid and accurate and the engine may be changed from idling to full speed in only a few revolutions or maintained indefinitely at any intermediate speed within very narrow limits.

The elimination of cylinder heads by confining the combustion space between the two pistons not only improves combustion, but also allows better cooling facilities at this point as well as eliminating the necessity for gaskets. The frame is of rigid light weight construction, using aluminum for parts not subjected to stress, such as cover plates. All water and oil piping is permanently tight, as are also the intake and exhaust manifolds. Built-in duplex rotary scavenger blowers are provided and the

uniflow principle of scavenging is employed. Other built-in auxiliaries include lubricating oil pumps—fuel oil service and transfer pumps and circulating water pumps.

The five cylinder sizes available are: 5x6, 6¹/₂x8, 8x10, 10x12, and 12 x 15 inches. Six, seven and eight cylinder combinations with a five cylinder size in the smallest bore give a power capacity range from 250 to 2400 horsepower.

Yacht Saved by Electrolysis Eliminators

We reprint herewith the unique experience of Captain H. F. Long, master of the palatial diesel yacht Haida belonging to Major Fleischmann. The Haida was laid up last winter at San Pedro, and after finally determining what caused pitting of copper piping and paint scaling, the Smith Meeker Engineering Company of New York City installed a set of Marine Electrolysis Eliminators, which, from Captain Long's comments, must have done their work.

Diesel Yacht Haida
San Pedro, Calif.
January 3, 1934

"Smith-Meeker Engineering Co.,
125 Barclay Street,
New York City.
"Gentlemen:

"When the yacht laid up in the fall of 1930 it was found that the salt water copper piping was badly eroded, especially near the couplings. Not only were numerous pinholes found, but the metal of the pipe had changed color.

"At first it was thought that the erosion came from acid in the water, there being several sewer discharge pipes from nearby oil re-

fineries emptying into the basin. After some discussion two separate analyses were made, both of which showed the water to be slightly alkaline and "not deleterious to copper". A section of the affected pipe was shown to an electrolysis expert who was able to inform us what the trouble really was, and recommended that a short section of iron pipe should be inserted in every pipe line.

"As it was quite impracticable to make this insertion of iron pipe, Chief Hanson felt that the same effect could be had by the installation of zinc. In all, over two hundred pounds were distributed in various places, pipes, tanks, main and generator water mainfolds. This did stop the erosion wherever the zincs were installed, but when the yacht was again drydocked it was noticed that the paint of the underwater body was sloughing off and that there was a tremendous amount of rust showing all over the steel plating.

"At first, I thought this sloughing of the paint and the unusual amount of rust came from the fact that the vessel was not drydocked for about eight months, also that it was caused by mill scale. To get rid of the scale and to smooth up the bottom, I had the underwater body sanded and specially prepared zinc paint was applied followed by one coat each of anti-corrosive and anti-fouling.

"Shortly after drydocking, the yacht made a trip to Mexican water, and about ten days after arrival there it was noticed that the two top coats of paint were scaling off. By the time we arrived back here, four weeks later, over two-thirds of the outer coats were gone.

"I was never so puzzled over anything in my life. I had taken special care to use the best paint obtainable, and I had carefully watched its application. At the instance of Major Fleischmann, I called a survey. A number of different experts examined the paint, and there were as many different opinions as there were examiners.

"The yacht was immediately drydocked, and again it was noticed there was considerable rust showing, pitting taking place all over the underwater part of the hull. It was also noticed that the zinc paint had disintegrated and came off like soft whitewash, another puzzling proposition. A number of prominent shipping men inspected the vessel while on the dock and not one was

able to give any solution of this very unusual problem.

"However, after studying the matter over from all angles I became convinced that the placing of the zincs on the interior of the ship forced the electrolysis to the outside hull. It was the electrolytic action which destroyed the zinc paint, allowing the two outer coats to scale off. Eight electrolysis eliminators were installed at this drydocking, and since then we have had no trouble at all either inside or out. At the two last dockings there were no signs of rust or pitting whatever, the paint being in fine condition and the vessel's bottom very smooth. The eliminator discs, however, were badly eaten away, and it was necessary to have them turned out in a lathe to remove the outer coat of metal.

"There was one other peculiar condition noticed during the time we were experimenting with the elimination of the electrolysis. There are twelve zinc plates installed on and around the stern frame of this vessel, and at no time has there been any sign of erosion on these plates. It was so unusual a condition that it was decided that the original plates installed when the vessel was built were of inferior metal, and new plates were installed in 1931. But after two years of service these new plates also show but little erosion at the present time.

"As I have before stated, it is my

firm belief that the eliminators saved this vessel. When first discovered, the situation was quite serious, and I am quite sure, if allowed to continue, would have caused considerable damage. As it is, however, the damage was very slight. Certain sections of the copper piping have been renewed but this was necessary in but a few places. The hull shows but slight signs of pitting, hardly noticeable except on very close examination."

Very truly yours

(Signed) H. F. Long
Master, Yacht "Haida"

Trade Notes

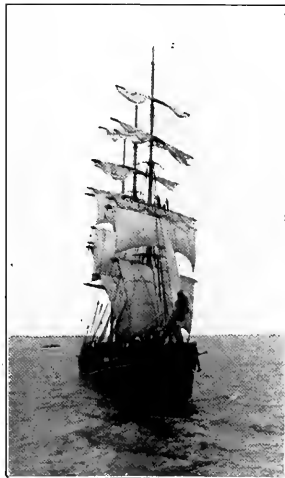
S. G. Hibben, national lighting authority and Director of Lighting of the Westinghouse Lamp Company recently sailed for Europe. While abroad, Mr. Hibben will make an extended tour of lamp factories in England and on the Continent, collecting data on foreign lighting trends and practice.

In London, Mr. Hibben will address the English Illuminating Engineering Society and the Electrical Development Association of Great Britain, using as his subject, "Recent Lighting Progress in America." Later he will speak before the Dutch Illuminating Engineers at the Hague.

Many of Mr. Hibben's findings will be incorporated in a paper he will present before the annual meeting of the Illuminating Engineering Society of America in Baltimore next September.

Infra-red Camera. Captain A. B. Randall of the United States Lines, S.S. Manhattan, has been trying out the Infra-red Fog Camera, and finds it a "great aid to navigation." He expresses himself as looking forward to the day when all ships will be fitted with fog cameras having a range of fifty miles, and when all ships, lighthouses, light vessels, and light buoys will be equipped with infra-red beams so that the camera may be used by night as well as by day.

Big Ship—Big Dock. The world's largest merchant vessel, the White Star Liner *Majestic*, recently docked at Southampton in the new King George V dock, world's largest graving dock. The *Majestic* is 915 feet, 5 inches long, 100 feet, 1 inch beam, and 58 feet, 2 inches depth.



An old timer.

Gas Engine Drive Three-Ton Lift Trucks

In its May issue Pacific Marine Review described the methods used in speeding up cargo handling on San Francisco piers operating gas engine drive lift trucks and skid platforms. The trucks used were the new Elwell Parker 3-ton gas lift-trucks which are here described in detail.

The Elwell Parker Electric Company has built electric trucks for more than 25 years and brought out gas-electrics much more recently. Straight gas trucks now complete the range of power. The company finished engineering research and preliminary shop work on gas trucks in 1932, and for nearly two years has had machines at work on various important types of materials-handling.

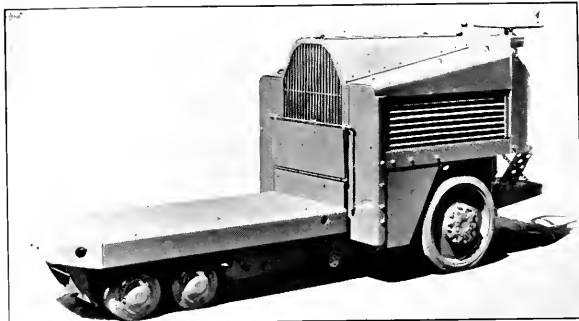
In designing this gasoline-driven unit, it has been the builders' aim to follow the most up-to-date and generally-accepted principles of automotive practice. Beginning with great simplicity of design, Elwell-Parker engineers have incorporated various advanced features, the better to adapt the new unit to specific services.

All engine controls, for example, are grouped within easy reach of the operator's right hand; choke, electric starting button, throttle and shift lever (two speeds forward and two reverse); while dials and indicators are immediately before him on the instrument board. The horn button is on the end of the operator's hand grip.

This arrangement permits the keeping of his left hand continually on the steering wheel. Steering is readily accomplished with one hand, due to leverage through high gear reduction, ball-bearing mountings, and steering connections.

The throttle control merits special mention. Located beneath the "balancing grip" by which the operator steadies himself when traveling at high speed, it puts the control of truck speed literally "under the operator's thumb."

A single pedal controls both the brake and the clutch. The upper half of its motion controls the brake; the lower half controls the clutch, and tends to provide for easy and positive clutching. Pressing down the pedal releases the brake and engages the clutch. Releasing the pedal, automatically disengages the clutch and then ap-



The Elwell-Parker gasoline engine drive 3-ton lift truck is a complete self-contained operating unit.

plies the brakes. Brakes are set, the instant the operator steps off the platform or even lifts his foot; further protection, especially when loaded truck is standing on grades, is afforded by a special transmission gear lock.

Hydraulic type of hoist mechanism, consisting of cylinder and valve, receives fluid under pressure from pump driven directly by motor. The cylinder, through a balanced lift, elevates the platform, mounted on rocking links. Extra clearance beneath the platform has been provided by placing the hoisting cylinder high in the truck. This avoids catching or fouling as the truck passes over toe-plate to gang-plank or into freight car, or rides

over the top of a ramp.

The maker claims unusually rapid pick-up and ample power, under instant control, for operating emergencies such as climbing steep ramps. Rugged design and stability of travel, combined with quiet performance, are also emphasized. Parts for these gas trucks are exact duplicates of those used in hundreds of Elwell-Parker proved electric and gas-electric units, and hence are interchangeable.

The Elwell-Parker Electric Company, Cleveland, Ohio, is the manufacturer of this new gas truck, as well as electric and gas-electric units. Ira G. Perin of San Francisco represents the Elwell-Parker Electric Company for California.

Air-Acetylene Flame Useful for Low Temperature Applications

The easily manipulated source of intense heat, the oxy-acetylene flame, is so generally accepted today throughout industry as being the ideal tool for making strong, permanent joints that it is easy to understand why those engaged in metal working may have overlooked the efficiency and utility of the air-acetylene flame and torch for work of similar nature, but where a lower flame temperature is sufficient. There are, as a matter of fact, hundreds of uses for the acetylene torch, so many, in fact, that the so-called "small torch outfit" (the air-acetylene torch outfit) is in reality a very valuable aid and supplementary tool to its big brother, the oxy-acetylene blowpipe.

Thousands of concerns are using

the small tank acetylene torches for as many different types of work with great success, particularly where the nature of the work demands a small, intense, easily controlled flame. Just to give an idea of how widespread this usage is, a brief list of some of the more important applications is given:

| Used by | Type of Work | For |
|--|--|---|
| electricians | soldering | wire splices ground clamps motor bars |
| painters | brazing burning | removing paint removing putty branding stencils |
| shoppers power men | soldering unsoldering lead burning | wire splices breaking wire joints sealing cables |
| plumbers tinsmiths battery men dentists jewelers | soldering soldering heating soldering soldering heating | copper pipe sheet metal heating battery boxes dental specialties fabricating jewelry fabricating jewelry |

In fact, one could name practically any industry and, as with the oxy-acetylene process, find numerous applications where the air-acetylene flame could be applied to increase efficiency and introduce greater economy.

Do not misconstrue the meaning of this article. Keep in mind always that the useful field of work of each of the two sister processes, the oxy-acetylene and the air acetylene, is each a separate sphere with little if any overlapping. Some jobs, obviously, could be done by either type of flame, but careful consideration of the job will point out that one or the other is more economically to be desired. In the long run it will be found that both processes will find a wide range of useful work in any plant, one supplementing the other if necessary.

● The Outfit

The air-acetylene outfit consists essentially of a small tank of dissolved acetylene, the same type that is known everywhere through its use for truck and motorcycle lighting; a pressure regulator which automatically holds the gas at a uniform and correct working pressure, insures minimum gas consumption and provides a means for reducing the gas pressure; a length of hose that is specifically manufactured for handling acetylene gas under pressure; a torch handle to which can be attached a varied assortment of stems for various work; and an assortment of stems which make it possible to carry out very fine soldering, light soldering, medium soldering, heavy soldering, and the soldering of copper (this tip consists of a soldering iron heated and kept at a constant temperature by means of the air-acetylene flame). With these stems a tremendous variety of work can easily be carried out.

● Advantages of the Process

There are many advantages which are inherent in the air acetylene flame over liquid or other gas fuel flames. It produces a higher flame temperature than gasoline, coal gas or natural gas. It produces a flame that is non-oxidizing and non-carbonizing, and it can be perfectly and instantly controlled.

By means of the blowpipe type stems the outfit is conveniently used in any position, in a corner or places hard to reach with other types of equipment. The small but intense flame can be focused exactly where it is needed. Because

each stem contains an individual mixer correct proportions of acetylene and air are automatically maintained, always insuring the proper flame.

Another outstanding advantage of this type of outfit is that it is completely portable and can be brought into action immediately. No preheating of the stem is necessary, simply turn on the gas, light the torch, and start to work. Obviously the flame can be turned out between jobs. Of particular worth is the simplicity of the outfit. Work can be started with the mere lighting of a match or a friction lighter.

● In Marine Work

These outfits are especially useful in many emergencies with the auxiliary machinery and in the repair of small fittings aboard ship. For quick work in confined spaces air-acetylene has many advantages. In the repair of small motors and generators, in storage battery work, in all types of sheet metal work, in burning off old paint, these outfits pay for themselves in a very short time.

In the servicing and conditioning of small outboard motors and the smaller engines, the acetylene torch is specially handy. One business which can be classified as "marine yacht supplies and repairs" uses this method for the repairing of fuel tanks for outboard motors. (In this connections always remember to clean the tank thoroughly with live steam or by other recommended methods, vent it, and if possible fill it with water before applying the heat). Significant is the fact that after being repaired the motors are given a test run under actual operating conditions but under heavier load. This test lasts from one to eight hours, depending upon the nature of the repair. A motor testing tank, which is, of course, filled with water, is constructed right on the floor out of wood lined with galvanized sheet iron. It is 12 ft. long, 4 ft. wide, and 39 in. deep. The galvanized sheets are laid in and the over-lapping joints nailed with galvanized nails placed about 3/4

inch apart. The acetylene torch is then used to solder over the nail heads and along the seams to make the tank watertight.

The mechanic in this shop who did this work commented on the fact that he seemed unable to do the work with a soldering iron or any type of heat other than the air-acetylene flame. He had tried to do it with the iron and had had no luck. With the acetylene torch he was able to get plenty of heat and put it exactly where he wanted it. All of the iron was tinned before it was put into place so that the actual soldering operation was accomplished very rapidly and without the necessity of using acid swabs and getting any acid in the tank. Over this tank is a hood of galvanized iron to carry off the exhaust gases from the motors under test. It is possible to set up six motors at a time for test work. With them all going at once the vibration is tremendous, and because of this, the soldering job on the seams has to be as good as possible.

It seems that every motor brings in a couple of quarts of salt water with it, and this salt water together with the bronze propeller and the zinc galvanizing sets up a reaction similar to a wet battery, which eats out the tank lining and makes complete relining necessary every couple of years. The old lining is, of course, completely ripped out and a new one put in.

Other similar operations around this same shop are also quite interesting. A motorboat was shipped to them from the factory without the hailer and it was necessary for them to install it. They first tried to do this work with a soldering iron but failed because the long application of the heated iron to the joints (necessary to get heat enough into the metal to apply the solder), permitted the heat to be transmitted to the soldered joints of the rudder stuffing box and shaft log which was right under the automatic bilge bailer location and soldered to the hull. This transmitted heat loosened these soldered joints. Because of the speed with which they could make the joint with the acetylene torch they were able to confine the heat to the exact location of the work. To make sure of this they encircled the work with a wet rag. This, of course, they would have been unable to do with either the soldering iron or the gasoline blow torch.





American Shipbuilding

FIVE MILLIONS IN NEW TANKERS

A ship building program entailing the expenditure of approximately \$5,000,000, which will give employment to hundreds of shipyard workers, is now under way for the Socony-Vacuum Oil Company, Inc., through its subsidiary, the Standard Vacuum Transportation Company.

Contracts for the new ships are said to be the largest placed by a private company in many months. Construction of two ocean-going tankers for the company is now under way at the New York Shipbuilding Company, and work on three self-propelled Diesel barges has started at the United Drydock, on Staten Island.

The tankers will be 500 feet long, with a total dead weight of 15,285 tons each. Total capacity of each will be 5,330,000 gallons. They are expected to be launched in the fall of 1934 and ready for service early in 1935. They will be placed in service between the Atlantic Seaboard and Pacific Coast ports.

The three barges, self-propelled by Diesel engines, are in reality small tankers for service on the rivers, New York State Barge Canal and Great Lakes.

The two ocean-going tankers, will cost approximately \$4,000,000. They will be under construction for

a period of twelve to fourteen months, during which time there will be an average of 2,000 men employed in the shipyard alone. In addition to these men actually employed in the fabricating of the vessels, employment is also given to a very large number of men in factories that manufacture such equipment as boilers, engines, electrical generators, dynamos, pumps, ventilating blowers, refrigerating equipment and piping.

The general description of the tankers is as follows: 500 feet length, 65 feet 9 inches beam, 37 feet depth; total deadweight 15,285 tons, on 29 feet 10 1/4 inches draft; 10 main double tanks and 6 summer tanks, each side; total capacity 5,330,000 gallons. Propulsion double reduction geared turbines; 4,000 S.H.P.; 12 1/2 knot speed on 30 tons of fuel.

NEW COAST GUARD VESSEL LAUNCHED

The first of three 165-foot steel patrol boats for the U. S. Coast Guard, now building at the plant of the Lake Union Drydock & Machine Works, was launched on June 16. Christened by Miss Barbara Hinkler, daughter of the retiring commander of the Seattle division of the Coast Guard, the new ship was named *Atalanta*.

The new *Atalanta* is to be ready

for service on October 1 and will be based in Seattle. She is powered with two Winton Diesel engines, developing 1300 shaft horsepower, and will have a cruising speed of 16 knots.

The second of the new trio of patrol boats, the *Ariadne*, will be ready for launching early next month and the keel of the third ship, the *Cyane*, is to be laid immediately. The *Ariadne* will be based at San Francisco and *Cyane* at Ketchikan, Alaska.

MARIETTA MAKES LOW BID ON TOWBOAT

Marietta Manufacturing Company, Point Pleasant, West Virginia, was low bidder on May 29 at the opening of bids at the United States Engineer's Office, Vicksburg, Mississippi, for the building of one twin screw diesel towboat. The amount of the bid was \$315,000.00 for delivery at Vicksburg in six months from date of contract.

NAVY GETS ANOTHER CRUISER

When the U. S. S. *Minneapolis*, Captain Gordon W. Heines, U. S. N., commanding, left the Philadelphia Navy Yard recently on her four-day builder's trial off the Delaware Capes and adjacent waters, the United States added another mighty unit to her growing naval forces.

(Continued on Page 220)



One of several such plants on the Pacific Coast, the General Engineering and Dry Dock Company of Oakland, California, (shown above) is ready to undertake its share of the present shipbuilding program, both Naval and Merchant Marine.

Progress of Construction

The following Report Covers the Shipbuilding Work in Progress at the Leading Shipyards of the United States as of June 1, 1934

Pacific Coast

BERG SHIPBUILDING CO.
foot of 26th Ave., N. W.
Seattle, Wash.

NEW CONSTRUCTION: Light-house tender Hemlock for U.S. Bureau of Lighthouses to be used in Alaska service; a twin screw, steel steamer 174' 6" in length; TE engines, 1000 H.P., WT boilers. Keel was laid April 27, 1933. Launched Jan. 20, 1934. Delivered.

BETHLEHEM SHIPBUILDING CORPORATION, LTD.

(Union Plant)
San Francisco

DRYDOCK, PAINT, MISCELLANEOUS: U.S.A.T. Meigs; S.S. Antigua; M.S. Asia; S.S. Santa Ana; S.S. President Taft; S.S. Sagebrush; S.S. Redline; S.S. F. H. Hillman; S.S. Point Arena; S.S. W. S. Rheem; S.S. Pres. Hayes; S.S. Maunauli; Union Oil Co. Barge 1922; S.S. Eldorado; S.S. Talamanca; S.S. Paul Shoup; S.S. Capt. A. F. Lucas; S.S. J. C. Fitzsimmons; S.S. Frank H. Buck; S.S. Pres. Hoover; S.S. Lake Galewood; Smith Rice Barge No. 3; S.S. Hegira; S.S. Chiriqui; S.S. Tulsagas; S.S. Point Sur; S.S. H. F. Alexander; U. S. Army Dredge Culebra; S.S. W. S. Miller; U.S.A.T. St. Mihiel; S.S. Yale; Shell Oil Co. Barge No. 6; S.S. Manulani or Manukai; S.S. Pres. Lincoln; S.S. Rappahannock; Tug. F. A. Douty.

ENGINE AND MACHINERY REPAIRS: S.S. Pres. Cleveland.

GENERAL ENGINEERING AND DRYDOCK CO.

Foot of Fifth Avenue
Oakland, Calif.

DRYDOCK, PAINT, MISCELLANEOUS: S.S. Kvichak; M.S. Kern; S.S. Stanwood; Barge Bridge Builders, Inc.

ENGINE AND MACHINERY REPAIRS: M.S. Silverbeech.

LAKE UNION DRYDOCK & MACHINE WORKS

Seattle, Wash.

NEW CONSTRUCTION: Hull No. 102, Atalanta, U.S. Coast Guard

patrol boat; keel laid March 23, 1934; estimated launching June 11, 1934; estimated delivery, Sept. 20, 1934.

Hull No. 103, Ariadne, U.S. Coast Guard patrol boat; keel laid March 23, 1934, estimated launching, July 1, 1934; estimated delivery, October, 1934.

Hull No. 104, Cyane, U.S. Coast Guard patrol boat; estimated keel laying, June 12, 1934; estimated launching August 1, 1934; estimated delivery, Nov. 1, 1934.

THE LOS ANGELES SHIPBUILDING & DRY DOCK CORP.

Los Angeles Harbor
San Pedro, Calif.

DRYDOCK, PAINT, MISCELLANEOUS: Tug Peacock; S.S. Cathwood; S.S. Edwin B. DeGolia; S.S. Cabrillo; S.S. W. S. Rheem; S.S. Eureka; Yacht Casiana; S.S. Mauna Loa; S.S. Avalon; S.S. W. T. Water Barge No. 3; S.S. Tamiahua.

ENGINE AND MACHINERY REPAIRS: S.S. Larry Doheny; S.S. Mauna Ala.

THE MOORE DRYDOCK CO.

Oakland, Calif.

DRYDOCK, PAINT, MISCELLANEOUS: Ferry Yerba Buena; S.S. Ohioan; S.S. Californian; M.S. Beulah; General Pershing; Whirlar Crane Barge No. 3; S.S. Iowan; S.S. Golden Mountain; Tug Rustler; Tug Sea Rover; American and S.S. Golden Coast; M.S. Saporea; Colonel George Armistead; Dakotan; Iowan; M.S. Franklynch; M.S. Felice; Tillamook; Hawk, and Trinidad.

PRINCE RUPERT DRYDOCK AND SHIPYARD

Prince Rupert, B.C.

DRYDOCK, PAINT, MISCELLANEOUS: S.S. Prince Charles; 10 fishing boats; 6 scows; 38 ship repair jobs not requiring docking; 41 commercial jobs.

THE PUGET SOUND NAVY YARD

Bremerton, Washington

NEW CONSTRUCTION: U.S.S. Worden (Destroyer No. 352), keel laid Dec. 29, 1932; LBP, 334'; Beam 34'2½"; Loaded Draft, 10'10"; gear-

ed turbine engines; Yarrow type water-tube boilers; U.S.S. Cushing (Destroyer No. 376); LBP, 334'; Beam, 35'1½"; Loaded Draft 10'10"; geared turbine engines; express type boilers; and U.S.S. Perkins (Destroyer No. 377); LBP 334'; Beam, 35'½"; Loaded Draft, 10'10"; geared turbine engines; express type boilers; building under provisions of National Industrial Recovery Act.

DRYDOCK, PAINT, MISCELLANEOUS: Oklahoma; Arizona; Trenton; Utah; Kanawha Partidge; Mahopac; Tatnuck; Challenge; Wando; Eagle 57; Aroostook; Jason; Kearsarge; Patoka; Pawtucket; Prometheus; Pyro; As-S (Ex-Savannah).

TODD SHIPYARD CORPORATION

Seattle, Wash.

DRYDOCK, PAINT, MISCELLANEOUS: S.S. Rappahannock; S.S. Mary D; S.S. Jacob Luckenbach; S.S. Edward Luckenbach; S.S. Florence Luckenbach; S.S. Alaska.

UNITED STATES NAVY YARD

Mare Island, Calif.

NEW CONSTRUCTION: Smith, U.S. torpedo boat destroyer (DD378); 340 ft. long, 35 knots speed; standard displacement, 1500 tons, estimated completion date, Feb., 1936. Preston, U. S. torpedo boat destroyer (DD-379); 340 ft. long; 35 knots speed; standard displacement, 1500 tons; estimated completion date, May, 1936. Preparation of plans and purchase of material in progress. Practically all of the structural steel has been purchased and delivered. The lines have been faired in the mold loft, and preparation of molds and fabrication of steel are proceeding. Neither of the vessels has been laid down, nor have dates yet been set.

Atlantic, Lakes, Rivers

AMERICAN BRIDGE COMPANY

Pittsburgh, Pa.

NEW CONSTRUCTION: Repairs to 20 barges for Carnegie Steel Co.

BATH IRON WORKS

Bath, Maine

NEW CONSTRUCTION: Hull No. 154, Dewey (DD 349), torpedo boat destroyer for U.S. Navy; keel laid Dec. 16, 1932; estimated launching, June, 1934; estimated delivery, August, 1934.

Hull No. 159, Drayton (DD 366), torpedo boat destroyer, U.S. Navy; keel laid, March 20, 1934; launching, no date set; estimated delivery November, 1935.

Hull No. 160, Lamson (DD 367), torpedo boat destroyer, for U.S. Navy; keel laid, March 20, 1934; launching, no dates set; estimated delivery, January, 1936. Speed loaded for all three of the above, 36½ knots. Standard displacement 1500 tons, turbine engines.

BETHLEHEM SHIPBUILDING CORPORATION

Fore River Plant,
Quincy, Mass.

NEW CONSTRUCTION: Heavy Cruiser CA-39, Quincy, 10,000 tons. Estimated delivery January, 1936.

Heavy Cruiser CA44, Vincennes, 10,000 tons. Estimated delivery January, 1937. Keel laid January 2, 1934.

Four Torpedo Boat Destroyers: DD360, Phelps, keel laid January 2, 1934; estimated delivery, December, 1935; DD361, Clark, keel laid January 2, 1934; estimated delivery February, 1936; DD362, Moffett, keel laid, January 2, 1934; estimated delivery April 1936; DD363, Balch, estimated keel laying, April, 1934; estimated delivery, June, 1936.

CHARLESTON DRYDOCK AND MACHINERY CO.

Charleston, S.C.

NEW CONSTRUCTION: Contract for building a 60-000-gallon gas, all-welded tanker; delivered April 29, 1934; owners not announced. Order for plans for stern-wheel river steamer for Krajewski-Pesant Mfg. Co. to be shipped knocked-down to Venezuela.

COLLINGWOOD SHIPYARDS, LTD.

Collingwood, Ontario.

DRYDOCK, PAINT, MISCELLANEOUS: C.G.S. St. Heliers.

DEFOE BOAT AND MOTOR WORKS

Bay City, Mich.

NEW CONSTRUCTION: U. S. Coast Guard Cutter No. 151, displacement tonnage 1000; keel laid,

November 30, 1933; estimated launching, Aug. 1934; estimated delivery, Sept. 1934 U. S. Coast Guard Cutter No. 152, displacement tonnage 1000; geared turbine drive; B. & W. boilers; 1500 h.p.; keel laid Dec. 15, 1933; estimated launching, Sept., 1934; estimated delivery, Oct. 1934.

THE DRAYO CONSTRUCTION CO.

Engineering Works Dept.,

Pittsburgh, Pa., and Wilmington, Del.

NEW CONSTRUCTION: Contract No. 872, Hull No. 997, one diesel sternwheel towboat of 91 gross tons; contract No. 983, Hull No. 1151, one steel floating drydock, Bureau of Yards and Docks, Navy Dept., of 4220 gross tons; Hulls Nos. 1163, 1164; two 750 h.p. twin screw diesel towboats for stock. Contract No. 1019, Hull No. 1169, 240 h.p. single screw diesel towboat; size 90' x 21' x 6' 9"; 153 gross tons. Contract No. W1022, Hull No. 1171 (1) welded steel bulk oil barge. Hull size 195'x40'x13'3", Seaboard Shipping Corporation. Hulls Nos. 1176, 1177—two standard 130'x30'x 7'6" steel S&G Barges, 1500 gross tons. Hulls Nos. 1178 to 1183, six standard 175'x26'x11' hopper type coal barges for stock; Hulls Nos. 1184 and 1185, two hopper type steel barges 80'x16'9"x6' for City of Philadelphia Dept. of Public Works; Hulls Nos. 1186 to 1193, eight flush deck S&G barges 130'x28'x7'6" for stock; Hulls Nos. 1194 to 1201, eight flush deck S&G barges 130'x24'x6'6" for stock. This makes a total of thirty-two hulls under contract, with a total gross tonnage of 11,626.

ELECTRIC BOAT CO.

Groton, Conn.

NEW CONSTRUCTION: Hull No. 19, fleet submarine, Shark, (SS174); L.B.P. 298'; beam, 25'; standard displacement, 1315 tons; keel laid, October 24, 1933; estimated launching, April, 1935, Hull No. 20, Tarpon (SS175): L.B.P., 298'; beam, 25'; standard displacement, 1315 tons; keel laid, Dec. 22, 1933; estimated launching, February, 1935; possible delivery, November, 1935.

THE FEDERAL SHIPBUILDING AND DRYDOCK COMPANY

Kearny, N.J.

NEW CONSTRUCTION: Two destroyers, DD368 Flusser and DD369 Reid for the U. S. Navy, estimated

completion dates—Flusser, Nov., 1935; Reid, February, 1936. Also three barges for undisclosed owner; Hulls Nos. 131, 132, 133; L.B.P. 205; beams 40', 39' and 39' respectively; depths 12'7½", 14' 1-3/8" and 14' 1 3/8" respectively; 825 D.W. tons; keel laid April 13, 1934. Hull No. 131, Hygrade No. 10, welded oil barge; keel laid Apr. 13, 1934; launched, May 18, 1934; delivered, June 5, 1934. Hull No. 132, undisclosed owner; keel laid, May 15, 1934.

INGALLS IRON WORKS Birmingham, Ala.

NEW CONSTRUCTION: Hull No. 72, river dredge; keel laid, Nov. 6, 1933; launched, May 18, 1934; L.B.P. 140 feet; beam, 49 feet. Hulls Nos. 73 and 74, river pontoons; keels laid Nov. 1933; L.B. P. 140'; beam, 8'. Hull No. 75, Wharfboat; 230'x55'x9'9"; keel laid Jan. 1934; launched, April 6, 1934; delivered May 15, 1934. Hull No. 82, Oil Barge, keel laid May 8, 1934; L.B.P. 200'; beam 40'; loaded draft, 8'6"; estimated delivery, July 5, 1934.

MANITOWOC SHIPBUILDING CO. Manitowoc, Wis.

NEW CONSTRUCTION: Three U.S. Coast Guard Patrol Boats, Hull Nos. 277 Dione, 278 Electra; and 279 Pandora; L.B.P. 165'; beam 25' 3"; loaded draft, 8' 6"; speed loaded, 18 knots; Diesel engines, 1300 S.H.P.; estimated launching for all three, June 30, 1934.

Hull No. 280, Lighthouse tender, Tamarack, L.B.P. 111'8"; beam 23'; loaded draft, 7'; speed loaded 10½ knots; Diesel electric, 450 S.H.P. No dates set.

THE MARIETTA MANUFACTURING COMPANY

Point Pleasant, W. Va.

Three 165' Patrol Boats for U. S. Coast Guard, Washington, D. C., 25'3" beam, 13'2" depth; will draw approximately 7'; twin-screw type, propelled by two 650 horsepower Winton Diesel engines. Total displacement of each vessel approximately 300 tons; required speed 16 knots—now under construction; estimated delivery dates, Oct. 9, 1934; Oct. 29, 1934; and Nov. 18, 1934 respectively; estimated launching, of first two, late June, 1934.

Two 132'x35'x10' steel covered cargo barges of 850 tons capacity for stock account under construction.

Two Side Wheel Self-Propelled 34" Pipe Line Dredges of the Dustpan Type. Total contract price \$1,016,500.00. Delivery in 180 and 210 days — Length, molded, 270'0"; length overall, 277'1½"; breadth, molded, 50'0"; breadth overall, 84'8¾"; depth, molded, 8'6"; depth midships, 9'3", first keel laid May 2, 1934.

MIDLAND BARGE COMPANY
(Subsidiary of Treadwell Construction Co.)

Midland and Erie, Pa.

NEW CONSTRUCTION: One barge 100'x24'x7' for Parsons & Roller Co.

NASHVILLE BRIDGE CO.,
Nashville, Tenn.

NEW CONSTRUCTION: Hull No. 286, Snag boat for U.S. Government, keel laid April 1, 1934; estimated launching, June 20, 1934; estimated delivery, November, 1934; L.B.P. 170'; beam 38'; loaded draft 4½'; 600 I.H.P. engine; 2 boilers.

Hulls No. 287, 288, 289, three deck barges for stock; 100'x26'x 6½'.

Hull No. 290, Derrick barge; keel laid May 25, 1934; launched June 20, 1934; L.B.P. 62'; beam 34'; loaded draft 5'; building for T.V.A.

Hulls Nos. 291, 292, 293, three deck barges; keels laid June 25, 1934; estimated launching Aug. 1, 1934; L.B.P. 133'; beam 29'; loaded draft 7½'; for stock.

Hulls Nos. 294, 295, two deck barges for stock; estimated keel laying, July 15, 1934; estimated launching, Sept. 1, 1934, for stock; L.B.P. 100'; beam 26'; loaded draft 6½'.

Hull No. 296, towboat; keel laid June 20, 1934; estimated launching, Aug. 1, 1934; L.B.P. 50'; beam 12½'; loaded draft 4½'; building for T.V.A.

NEWPORT NEWS SHIPBUILDING & DRYDOCK CO.

90 Broad Street, New York

NEW CONSTRUCTION: H 359 aircraft carrier CV5, Yorktown, for U.S. Navy, keel laid May 21, 1934; estimated delivery, August, 1936.

H360 aircraft carrier, CV6. Enterprise, for U.S. Navy, estimated keel laying, Nov. 5, 1934; estimated delivery, December, 1936.

Ranger, hull 353, aircraft carrier No. 4 for U.S. Navy, keel laid September 26, 1931, launched February

25, 1933, estimated delivery June 4, 1934.

THE NEW YORK SHIPBUILDING COMPANY
Camden, N.J.

NEW CONSTRUCTION: Contracts for four destroyers: Hull No. 408, Porter (DD356); Hull No. 409, Selfridge (DD357); Hull No. 410, McDougal (DD358); Hull No. 411, Winslow (DD359); of 1850 tons each; keels laid, Dec. 1933. Also two light cruisers: Hull No. 412, Savannah (CL42), Hull No. 413, Nashville (CL43), of 10,000 tons each for the U. S. Navy Department; estimated delivery dates are as follows: DD356, Porter, Dec., 1935; DD357, Selfridge, Feb., 1936; DD358, McDougal, Apr., 1936; DD359, Winslow, June, 1936; CL42, Savannah, Aug., 1936; CL43, Nashville, Dec., 1936. Oil tanker, No. 414, and oil tanker No. 415, for Standard-Vacuum Transportation Company, 15,000 tons D.W. each; keels laid March 26, 1934; delivery early 1935.

THE PUSEY & JONES CORP.
Wilmington, Del.

NEW CONSTRUCTION: Nos. 56, Algonquin; 57, Comanche; and 58, Mohawk; cruising cutters, building for Treasury Department, U. S. Coast Guard Service; L.B.P., 150'; beams, 36'; loaded draft 13'; speed loaded, 15 miles per hour; turbine engines, 1500 S.H.P.; two watertube boilers, 325 pounds pressure, construction schedule: No. 56, keel laid, January 16, 1934; estimated launching, June 25, 1934; estimated delivery, September 29, 1934; No. 57, keel laid, January 17, 1934; estimated launching, July 25, 1934; estimated delivery, November 2, 1934; No. 58, keel laid, February 1, 1934; estimated launching, September 21, 1934; estimated delivery, December 8, 1934.

SPEEDEN SHIPBUILDING CO.
Baltimore, Md.

NEW CONSTRUCTION: Hull No. 274 (Diesel), Electric, wrought iron hull, Boarding Cutter, for the U. S. Public Health Service, Staten Island N. Y. keel laid March 15, 1934; estimated launching, July 15, 1934; estimated delivery, Dec. 27, 1934; L.B.P. 100'8"; beam, 23'; loaded draft, 10'; speed loaded, 12 knots; two 360 B.H.P. Fairbanks Morse engines. Contract received Jan. 11, 1934.

SUN SHIPBUILDING & DRY DOCK CO.

Chester, Pa.

NEW CONSTRUCTION: Hull No. 150, welded Diesel electric barge for Atlantic Refining Co., L.B.P. 190'; beam, 34'; estimated delivery, June 15, 1934.

UNITED DRYDOCKS, Inc.
Staten Island, N.Y.

NEW CONSTRUCTION: DD364, destroyer Mahan, estimated delivery, Oct. 1935, and DD 365, destroyer Cummings, estimated delivery, Dec., 1935, for U. S. Navy.

No. 822, tanker, keel laid February 1, 1934; launched June 1, 1934; estimated delivery, July 12, 1934.

Hull No. 823, tanker, keel laid, March 6, 1934, estimated launching, June 20, 1934; estimated delivery, July 31, 1934.

Hull No. 824, keel laid April 3, 1934; estimated launching, Sept. 1, 1934; estimated delivery, October 5, 1934. Data on all three above: L.B.P., 252'; Beam, 40'; Depth, 14'; D.W. tons, 1200; 2 Diesel engines of 375 BHP each, building for Standard-Vacuum Transportation Co.

Hulls No. 825, 826, 827 and 828—barges; the first three for Nielson and Huszagh, keels laid, May 17, 19, and 21, respectively; estimated launching, June 15, estimated delivery, June 15; 100'x30'x8'; the last for Newton Creek Towing Co.; keel laid, May 16; estimated launching, June 11; estimated delivery, June 15; 280'x40'x12'6" (being built at Crane, 27th St. Plant, Brooklyn, N.Y.)

UNITED STATES NAVY YARD
Boston, Mass.

NEW CONSTRUCTION: Destroyer DD 370, Case, L.B.P. 334 ft., beam 35 ft.; estimated delivery, Feb., 1936; destroyer DD371, Conyngham, L.B.P. 334 ft., beam 35 ft., estimated delivery, May, 1936; destroyer DD354, Monaghan, L.B.P. 334 ft., beam 34 ft. 2 in., keel laid, November 21, 1933; estimated delivery, May, 1935; destroyer DD-351, Macdonough, keel laid May 15, 1933, L.B.P. 334 ft., beam 34 ft. 2 in., estimated delivery, Feb., 1935; for the U.S. Navy.

UNITED STATES NAVY YARD
Charleston, S.C.

NEW CONSTRUCTION: U.S.S. Charleston, gunboat (PG 51) for U.S. Navy, building period assigned

by Navy Department, Nov. 1, 1933, to Feb. 1, 1936. Work started, Feb. 1, 1934. Also assigned Coast Guard Harbor Cutters 61, 63, and 64; work started Feb. 1, 1934; keels laid June 8, 1934. One Coast Guard Cutter (2000 tons). No dates set.

UNITED STATES NAVY YARD New York, N. Y.

NEW CONSTRUCTION

Hull No. 350, **Hull**, destroyer; keel laid, March, 1933; no further dates set; L.B.P. 334'; beam, 34'2"; standard displacement, 1500 tons; geared turbine engines; express type boilers.

Hull No. 353, **Dale**, destroyer, dimensions same as above, no dates set.

Hull No. 41, **Brooklyn**, light cruiser, no dates set; L.B.P. 600'; beam 61'8"; standard displacement, 10,000; geared turbine engines; express type boilers.

Hull No. 50, **Erie**, gunboat, no dates set; L.B.P., 308'; beam, 41'; standard displacement, 2000 tons; geared turbine engines; express type boilers. Building for U.S. Navy.

UNITED STATES NAVY YARD Philadelphia, Pa.

NEW CONSTRUCTION: **Philadelphia (CL41)**, light cruiser, 10,000 tons, length overall 608'4"; breadth 61'9" extreme; depth 34' at side; estimated completion, Nov., 1936. **Minneapolis (CA36)**, heavy cruiser, 10,000 tons, length overall 607'6"; breadth 59'6" molded; depth 35'8"; tentative delivery date August, 1934. **Aylwin (DD355)**, destroyer, 1,500 tons; **Cassin (DD372)**, destroyer, 1,500 tons; **Shaw (DD373)** destroyer 1,500 tons for last three above; length overall 341'3", breadth 34'11½" extreme; depth 23'2" at side; tentative delivery dates January, 1935, February, 1936, May, 1936, respectively. **Four U. S. Coast Guard cutters** to be delivered December 1935, February 1936, April 1936, and June 1936, respectively; dimensions: L.B.P., 308'; Beam, 41' 3¾"; Loaded draft, 2000.

UNITED STATES NAVY YARD Portsmouth, N. H.

NEW CONSTRUCTION: **S.S. 172, Porpoise**; keel laid, October 27, 1933; estimated delivery, Feb. 1936. **SS 173, Pike**, keel laid, Dec. 20, 1933 estimated delivery, May, 1936; L.B.P. 289'-0"; beam 24'-11-1/16";

(Continued from Page 216)

Authorized under the London and Washington Conferences, the **Minneapolis**, launched at the Philadelphia Navy Yard last September, is one of the seventeen new vessels in the heavy cruiser class built by the United States.

The complete engine room propelling equipment of this latest addition to the United States Navy was furnished by the Westinghouse Electric and Manufacturing Company. The geared turbines which furnish the motive power for this vessel are designed to drive the four propellers of this 10,000-ton cruiser at 33 knots per hour. They generate 107,000 horsepower or 79,822 kilowatts. This is enough electrical energy to illuminate a Great White Way around the world at the Equator which would require 798,220 100-watt lamps used in the ordinary street lighting system of the country, spaced 165 ft. 3 inches apart.

Upon returning from her builder's trial, the **Minneapolis** remained at the Philadelphia Navy Yard until June 20 in order to make further tests and trials as required and directed by the Commandant of the Fourth Naval District, Rear Admiral Arthur J. Hepburn, U. S. N., or the commanding officer of the vessel. On June 21 she started her shakedown period which will continue until September 23. This includes operation at sea prior to commencing her shakedown cruise. As yet no arrangement has been made for the cruise. Other tests and trials will continue until the **Minneapolis** takes her place in the fleet on February 1 of next year.

Other Westinghouse equipped vessels in the heavy cruiser class are the U. S. S. **New Orleans** and the U. S. S. **San Francisco**, both on their 10,000-mile shakedown cruise, the former en route to Copenhagen and the latter on her way to Australia, while still another ship, the U. S. S. **Astoria**, which is building on the Pacific Coast, will be ready for sea the latter part of June.

The **Minneapolis** will carry a total of 34 commissioned officers, 9 warrant officers and a crew of 551 men.

The dimensions of the **Minneapolis** are length overall 610 feet;

loaded draft 13'-9"; diesel electric engines. **Coast Guard Harbor Cutter 62 Hudson**; estimated delivery, Nov. 1934; L.B.P. 104'-0"; beam 24'-0"; loaded draft 10'-6"; diesel electric engines.

extreme beam 66 feet; displacement 10,000 tons; caliber of largest guns 8 inch. She will carry four planes, two mounted on catapults and two in the hangers aft.

Trade Notes

Large Electric Refrigerator Order

Continuing the policy of equipping its officers' quarters with modern conveniences, the War Department has awarded a contract to the Westinghouse Electric & Manufacturing company through its Washington, D. C. office for 1,467 electric refrigerators.

These refrigerators, of six and nine cubic feet sizes, will be installed in thirty Army Posts extending from the Atlantic to the Pacific Coast and from the Canadian border to the Mexican boundary.

Models selected by the government officials were of the "C" line, recently announced by the Westinghouse Company. These models were subjected to various tests by the officials directing the purchase. A group of War Department engineers headed up by J. R. Gramm, Senior Engineer, Construction Division, Office Quartermaster General, U. S. War Department, visited the East Springfield Plant of the Westinghouse Company to complete the tests and make final arrangements for the shipment of the electric refrigerators.

Marine Radio Mail Service. A new deferred radiotelegraph service from ships at sea to any point in Continental United States has been inaugurated by the Mackay Radio and Telegraph Company. Messages may now be transmitted from ships at sea to Mackay Radio Coastal Stations for forwarding from such stations to destination either by regular mail or air mail as designated by the sender.

This service makes available to the general public at greatly reduced rates a reasonably quick means of communication from ships at sea to all points in Continental United States for messages not requiring immediate delivery.

All such deferred rate messages must carry full mailing address with the indicator "SLT" written as the first word of the address. The charge for this new service is \$2.50 for 25 words and 10c for each additional word, postage included.

Diesel Plant Expands. On June (See next page)

Freights, Charters, Sales

June 20, 1934.

The coastwise strike of stevedores referred to in our last report is still in full effect and in consequence there has been only a negligible amount of chartering. The only real activity has been in tankers though a few British Columbia charters are reported. This inactivity applies equally to the berth trades and regular liners have been forced in view of the difficulties in United States ports to fall back on British Columbia wheat. This has resulted in some very low parcel rates finishing parcels having been accepted at as little as 10/6. Figures reported as follows:

GRAIN: British Steamer Grain-ton, British Columbia to London, 16/-; British Steamer Winkleigh, British Motorship Cape Horn, British Steamers Anglo Australian, Appledore, all British Columbia to U. K. (berthed); British Steamer Hadleigh Columbia River and/or British Columbia to Liverpool and Dublin, p.t.; Norwegian Motorship Belpareil British Columbia to U. K., p.t.

LUMBER: British Motorship Allynbank, Puget Sound to Japan lump sum \$18,500; Norwegian Motorship Belpamela, Grays Harbor to Newfoundland p.t.; British Steamer Janeta, British Columbia to Port Pirie, p.t.

TIME CHARTERS: British Steamer British Monarch, one trip, delivery North Pacific, redelivery Japan, British Steamer Helmskey, same; Norwegian Motorship Danwood, period Pacific trading, p.t.; Norwegian Motorship Lionel, delivery North Pacific, redelivery China/Japan.

TANKERS: British Motorship Corabank, 12 months delivery California, redelivery Far East 4/6 (clean); Norwegian Motorship Svolder, California to Japan, 10/3 (clean); American Steamer Elizabeth Kellogg California/Japan, 39 cents (dirty).

SALES: Danish Motorship Jutlandia, by East Asiatic Co. to Carisro Incorporated, p.t.

PAGE BROTHERS,
Brokers.

business of Cargo Surveying and Appraising under the firm name of Koehler and Koehler.

Errata notice—Pacific Marine Review desires to correct an error appearing in the May advertisement of the Elwell-Parker Electric Company. Reference made to the users of Elwell-Parker Lift Trucks (as specified in this copy) should have named Bay Cities Transportation Company (instead of Marine Terminals Company of San Francisco) as owners of this equipment.

Book Reviews

(Continued from Page 209)

this year contains the new International Code flags and also 2914 private signals and 16 plates of Yacht Club Burgees making in all 63 colored plates.

The Yacht Register is issued by Lloyd's Register of Shipping, 17 Battery Place, New York, the price being unchanged at \$14.00 for the blue cloth edition and \$12.00 for the canvas edition.

OTHER BOOKS RECEIVED

Reviews of these books will appear in a forthcoming issue of Pacific Marine Review.

Boy and Girl Tramps of America
by Thomas Minihan . . . Farrar & Rinehart.

Within a Year by Faith Baldwin . . .
Farrar & Rinehart.

Stars to Steer By by Helen Follett
. . . The Macmillan Company.

Trade Notes

(Continued from Page 220)

1st, 1934, the American Diesel Engine Company of San Francisco occupied new manufacturing headquarters, Office and Sales Rooms at 18th and Alabama Streets, San Francisco. This firm has finished all development and design work on a complete line of 2, 4, and 6 cylin-

der marine, industrial, and automotive diesel and gasoline engines. Increased business indicates new and larger quarters.

Partner Resigns. Koehler, Kemp and Koehler, marine surveyors of New York, Philadelphia and San Francisco, announce with regret the resignation from the firm of John S. Kemp, effective July 1st, 1934. The organization will carry on the





Marine Insurance

German Export Credit Insurance

An Interesting Method of Protecting Exporters and Financing Exports

An article in the current number of Commerce Reports gives a comprehensive report on, and evaluation of, the German official export credit insurance scheme which should be of great interest to American exporters and importers, and to all marine insurance brokers. Abstract of the article follows:

This scheme was initiated in 1926 and is handled by the Hermes Credit Insurance Bank of Berlin, in close cooperation with the German government. It has two direct aims:

(a) Economic insurance, to provide protection for exporters against inability of their clients to pay as a result of bankruptcies, adjustments either in or out of court, liquidation adjustments, or fruitless seizure; (b) Political insurance, to provide protection for exporters against impossibility of collecting claims as a result of governmental prohibitions (moratoria) or as a result of governmental or other measures in connection with currency or foreign exchange. This double protection marks export credit insurance as one of the most valuable means of promoting German export trade.

The annual amounts of insurance written under these forms of protection rose from 45 million marks in 1927 to 100 million marks in 1930, and then declined to 17 million marks in 1932. The aggregate amount from inception to June 30, 1933, was 345,221,000 marks, and of this total the credits of European countries accounted for 128 million marks, while those of South America took 109 million marks.

On the total insured value 3½ million marks was paid in premiums or approximately one per cent. During the same period, a total of 3,400,000 marks was paid out in losses, and of this total 2,700,000 marks were for economic and 700,000 marks for political insurance. There is therefore only 100,000 marks income to take care of 7½ years administrative and overhead costs. In fact, this operation of credit insurance shows a considerable loss.

● Credit Insurance Assists Financing of Exports

Aside from the protection afforded, export credit insurance enables the exporter to obtain advance payments from his bank of a certain percentage of his invoice by ceding his claims from the insurance policy to the bank. The insurance company will issue a covering letter to the bank, confirming that a certain claim of the exporter against a certain customer for mer-

chandise delivered against credit is insured, and that in case of loss the claim for compensation is ceded to the bank. These covering letters are regarded as sufficient substantiation by the bank, and in many cases such letters are sufficient to release other securities given by exporters, resulting in a strengthening of their operating capital.

● Credits to Foreign Governments Also Insured

The different types of insurances mentioned above apply only to export credits extended to foreign private customers. For export credit transactions with foreign governments or other corporations of public law, the insurance company, after receipt and examination of a special application, can issue as mandatory of the Reich an export guaranty to the extent of 70 per cent of the credit. Under certain conditions the company will also issue a Federal export guaranty, as mandatory of the Reich for credit transactions with Russia.

● Various Types of Insurance Available

The German export trade now has the following possibilities of credit insurance:

1. **Individual invoice insurance.**—Up to two thirds of accruing losses may be insured at premiums of at most 2 per cent for terms of 5 months, with an additional 0.2 per cent for each additional month. For shipments worth more than 5,000 marks, acceptance of an insurance application and conditions of the policy are determined by the committee for export credit insurance, composed of representatives of the Government, industry, export interests, and the insurance company.

2. **Individual revolving credit insurance.**—On similar terms and conditions, a standing credit up to an agreed amount for an individual importer may be insured.

3. **Export blanket insurance.**—An exporter having a number of foreign customers to whom he currently sells on various terms may insure, after examination of the credit standing of the individual customers, up to a maximum credit fixed for each for a given period applicable to all customers. The premium for this type of insurance is calculated at a certain percentage per month of the limit specified for each customer and of the turnover with each customer.

4. **Export lump-sum insurance.**—When an exporter sells currently to a large number of foreign customers on various terms, he may insure, without examination

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of the individual credit standings, the total turn-over with all his foreign customers, with the provision of a maximum liability in the case of any one customer. This type of insurance must be taken out for a term of at least 2 years, and in case of loss the exporter must prove that he exercised due care in the granting of credits. The exporter must carry a certain part of the risk. Under this policy a premium is paid on the total turn-over, the amount of which has to be calculated in each case and depends chiefly on the percentage of the risk carried by the exporter himself.

5. **Additional export insurance.**—Firms having a predominantly domestic turn-over insured by the company can take out an additional contract to cover their export turn-over, provided that the export share in the total turn-over is small.

Upon special application the risk entailed by cash-against-documents transactions can also be insured. This insurance in practice is limited to loss which the exporter may sustain through forced sale of the merchandise to a third party. The insurance is, therefore, generally limited to 30 per cent of the invoice, and the premium is similarly calculated.

In special cases involving export credits of considerable size extended to foreign concerns in the form of investment credits (chiefly for machinery deliveries), the invoice value to be paid out of the profits realized by the foreign plant when erected, there is a possibility, after careful examination of the circumstances, of making export credit insurance available in the interest of German export trade and employment provision.

● Government Shares in Credit Insurance

Ever since the establishment of export credit insurance facilities, the Reich had taken over, as reinsurer, a quota of approximately 50 per cent. In addition the Reich has agreed to take over on its own account all losses in excess of a certain proportion of the premium.

On account of the Government's participation, it is possible for the insurance company to accept even serious risks in cases where the insurance seems to be desirable in the interest of providing work. It is always a primary condition that such transactions be regarded as sound, and that at the time the application is made there is no evidence indicating the foreign customer's inability to pay. The political risk is always taken over completely by the Reich.

Decision on Claims for Lost Freights

During a fog off Port Townsend, Washington, in October, 1932, the ferry steamer *Iroquois* of the Puget Sound Navigation Company of Seattle, Washington, collided with the intercoastal cargo steamer, *San Vincente* of the Pacific Atlantic Steamship Company of Portland, Oregon. Collision damages were promptly paid by the Seattle firm, but they disputed a claim of \$8500.00 asked by the Portland firm as compensation for freights on certain cargo the transport of which was alleged to have been lost through the 16 days delay incident to the collision.

This dispute was submitted by mutual agreement to arbitration, and Farnham P. Griffiths of San Francisco California, Attorney in Admiralty, was selected as arbitrator. Mr. Griffiths is connected with the well-known legal firm of McCutcheon, Olney, Mannon, and Greene.

His decision held that this claim be not allowed, because, first, the booking of these freights was not a firm booking; second, even if the business was firm, the claimant must prove beyond any reasonable doubt that the cargo actually would have been carried.

It would, of course, be a very difficult matter to present proof overcoming the second point in this decision. The proceedings in the arbitration of this case were extremely simple, and the hearing was practically limited to the filing of briefs. Much better than long drawn out wrangling in the courts, and much more economical.



Balfour, Kessler Agencies Inc.

Marine Insurance Department

Agents for

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NORTH CHINA

UNION OF CANTON
QUEENSLAND YANG-TSZE

BRITISH AND FOREIGN
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(Marine Department)

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Fire Insurance Co., Ltd.
(Marine Department)

CANTON

Insurance Office, Ltd.

Louis Rosenthal Co., Ltd.

General Agent
302 California Street

Marine Insurance Notes

Can Sailors Swim? The Seamen's Y. M. C. A. in New York is offering free swimming lessons to all vessel employees in an attempt to cut down the high death rate from drowning among seamen.

Long Faithful Service. Mr. William Larkin of the Western Union Telegraph Company was retired recently at the age of 70. For 54 years he had been stationed at the Obser-

vation Tower on the Quarantine Station, Fort Wadsworth, Staten Island, reporting the movements of ships in and out of New York Harbor.

Care in Approaching Lightships. In the Department of Commerce Notice to Mariners of May 2, 1934, there was sounded a warning to navigators over the practice, that has become somewhat general, of

setting a radio bearing course directly for the lightship. "Recently," says this notice, "an Atlantic liner in approaching Nantucket Light Ship in a dense fog found the radio bearing so accurate that the steamer scraped the side of the light ship carrying away antenna yards."

With this official warning issued on May 2, it is rather significant that about 10 days later, the liner Olympic, running a course down the Nantucket Light Ship radio bearing rammed that vessel and cut

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her in two. The lightship sank inside of three minutes with only four survivors, seven of the crew being drowned. There is, of course, no excuse for such navigation. A navigator might just as well be excused for ramming the Minot Ledge Lighthouse. The above mentioned notice to mariners indicates as follows the correct procedure for navigators approaching light vessels on radio bearings:

"It is exceedingly dangerous navigation to proceed on a radio bearing directly for a lightship, counting on hearing the fog signals in time to change course and pass safely. The vagaries of sound fog signals are well known, and such signals may not be heard with certainty in time to avoid a collision, serious alike to the approaching vessel and to the lightship; the loss of the latter would dangerously affect all other navigation in the vicinity.

"Apparently the great advantages of radiobeacons in permitting the obtaining of long distance bearings in fog, have given a false sense of security to navigators, which has caused the overlooking of safeguards which are as necessary in the use of radio as in any other kind of navigation.

"It is of the highest importance, in using radio bearings for approach, that at a sufficient distance before reaching a lightship, the course be set to pass safely clear.

"Radiobeacons and radio bearings themselves offer to navigators a convenient means of checking this, by methods well known in or-

dinary navigation, but apparently too often overlooked in navigation by radio bearings. The navigator may readily check his position with respect to the lightship radiobeacon when steering to pass to one side, by taking suggestive radio bearings and using these with the intervening distances run, to ascertain the distances off from time to time. Also, in approaching, it is possible by radio cross bearings to obtain the distance off, at least approximately; thus in the case of Nantucket Lightship, when coming from the eastward, radio bearings on Nantucket Lightship, with similar bearings on either Pollock Rip or Cape Cod radiobeacons, will give a position, and the signals are so operated that there should be no difficulty in obtaining radio bearings at suitable intervals regardless of weather conditions."

The United States as a result of this accident has filed a libel on the Olympic for \$500,000 and is suing her owners for that amount. Undoubtedly the Olympic will be held responsible for the sinking. She is insured for \$3,271,700, ten per cent of this amount being carried by the United States Foreign Hull Syndicate.

Bosphorus and Dardanelles. The commission in charge of these waterways in its report for 1933 recommends that all vessels whose officers are not thoroughly familiar with local navigation and the many local rules covering the channel rights of way should employ a pilot even though such use is a matter of choice.

Repair Costs and Underwriter's Profits. European shipping journals are sounding a note of alarm over the inevitable rise of repair costs with the increased cost of both labor and materials. Coupled with the reduction in premium rates during the past few years this increase in repair costs will more than absorb any profits.

America's 1933 Accident Bill. Two billion dollars were represented in the lost wages and medical bills due to accidents in the United States last year, according

to an announcement by the National Safety Council. There were 89,500 lives claimed by accident and 8500 disabling injuries.

Health Insurance for Seamen. The scheme for the insurance against illness of French seamen as provided by a decree of Dec. 18, last, has now been enforced, and each man will pay two and a half francs monthly, which, together with an equal amount paid by the employer, is impounded in a fund out of which payments are made to sick seamen. These payments are limited to 80 per cent of the doctor bill plus 85 per cent of cash paid out for medicine and supplies. French seamen have enjoyed old age pensions and accident insurance for over two centuries—longer, in fact, than any other class of workers in France or anywhere else. This ancient privilege of the French seaman was won as a special recognition of heavy military obligations. The present move is an extension to seamen of the social insurance recently provided for all French workers.

End of the Nonsuch Line. It is 265 years since the Honorable Company of Hudson Bay Adventurers sent out from London the fifty-ton ketch Nonsuch, carrying stores and trading goods for their outposts in Canada. Nonsuch returned in due time with rich store of furs. She has been followed every year since by one or more vessels under the house flag composed of the British red ensign with large white block letters, H.B.C. in lower right quarter. This year the company has decided to rely in future on the regular commercial services across the Atlantic, confining its own marine activities to the more remote of the Canadian coastal waters.

Dogs Keep Light Operating. Cape Darby Light, on the northerly shore of Norton Sound, in Bering Sea, is maintained from August 1 to November 1. It was necessary that five acetylene gas cylinders be taken to the light, the most practicable method being by dog sled, while snow was on the ground. Therefore the cylinders were taken in early in April, it again being necessary to visit the light just prior to August 1, to place it in commission for the season of navigation. It is not necessary to maintain the light before the first of August, owing to the long days in that high latitude.

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Pacific Marine Personals

"NAMES ARE NEWS"



BY BERNARD De ROCHIE

● Leviathan Skippers

W. H. Hoskier, I. M. M. executive in San Francisco, tells us of the appointment of **Captain Giles C. Stedman** as staff captain of the *Leviathan*, which liner—America's largest, by the way—is commanded by **Commodore A. B. Randall**, as announced in these columns last month.

Captain Stedman was master of the American merchant liner, *American Banker*, and was formerly on the *Leviathan* in the same capacity.

Both men have notable records for rescues at sea. Commodore Randall figured in the rescue of the crew of the schooner, *Rita M. Cluett*, in 1922, the rescue of five men from the *Reine des Mers* in the same year, and the crew of *Coast Guard Cutter 134* in '25. Captain Stedman also shares honors in rescue work. He was in command of the *American Merchant* when he rescued twenty-two men from the *Exeter City*, and he was in charge of the lifeboat which put off from the *President Harding* in 1925 to take off twenty-eight men from the sinking freighter, *Ignacio Flores*.

● We Salute—

Citation for real courage in accomplishing emergency repairs at sea goes to **Captain Svedstrup** of the O. & O. liner *Golden Coast*. Propeller-racing was the cause of trouble which might have been very serious except for prompt and skillful "first aid" on the part of the redoubtable skipper.

P. M. R. salutes you—Captain Svedstrup!

● Two Generals Meet

Captain **Alfred G. Ford** berthed the *States* liner, *General Sherman*, at pier 45 in San Francisco during the time the companion liner, *General Pershing* was longside. The *Pershing* was recently dry docked at Moore's in Oakland for general overhauling.

C. E. Helms, vice-president of McCormick Steamship Company, was a "flying visitor" to Los Angeles during the month—aviating both ways.



● Captain Alf Adler Takes Command of Santa Rosa

When the *Grace Liner Santa Rosa* sailed for the Spanish Americas and California on June 8th, a new master was on her bridge. **Captain Alf Adler** (above), who has held his master's certificate since he was 25 and with six *Grace Line* commands to his credit, has taken over the *Santa Rosa*. He is 36, married and lives in New York.

● Exhibit Attracts

Harry E. Coyle, Mackay marine expert on these shores of the Pacific, planned and supervised the installation of a graphic exhibit which is attracting crowds in front of the Postal office, Palace Hotel, Market Street—need we add—San Francisco.

Elaborate broadside views of the T.S.S. *Manhattan* form the background of several pieces of Mackay communication equipment, the largest of which is the combination intermediate and short wave ship radio-telegraph transmitter—such as installed on the giant trans-Atlantic liner.

Other sets on display include the various units of apparatus employed aboard ship for receiving and sending, with compactness the feature. Shipowners, their officers and engineers will find this window display particularly interesting.

● Los Angeles News of the Month

E. J. Amar, Jr., president of the L. A. Harbor Commission, declared that the board had fixed the fiscal year budget, 1934-35, at \$3,940,550 for administering the work of the department.

Clyde Thornton is manager of newly opened Los Angeles branch office of Mathews & Livingston, San Francisco insurance brokerage firm.

The S. O. S. Club was formed by steamship solicitors of freight at a meeting held June 11 at the L. A. Transportation Club. S. O. S. means "Sellers of Space."

Arthur Eldridge is new general manager of the L. A. Harbor department, taking over the work of **Carl Wirsching**, resigned. Mr. Eldridge has been in city service for 25 years.

The Foreign Trade Club listened to a talk by **H. M. Galkovitch**, Soviet Consul General, who was a visitor from the San Francisco consular offices. "World peace and development of the Far East are Soviet and U. S. aims," he declared.

● Todd Election

At the Annual Meeting of the Board of Directors of **Todd Shipyards Corporation**, **John D. Reilly** was again elected president of the corporation.

The following officers were also re-elected:

Mr. George Dawe, executive vice-president in charge of operations.

Mr. J. Herbert Todd, vice-president and chairman of executive committee.

Mr. Geo. G. Raymond, vice-president.

Mr. Sanford S. Cox, secretary and treasurer.

Mr. E. P. Enfer, assistant secretary and assistant treasurer.

In addition to the above officers, **Mr. Clarence W. Wiley**, president of the *Todd Dry Docks, Inc.*, Seattle, Washington, a subsidiary, was appointed a vice-president of the parent corporation.

"Pull on the Rope Men Pull it up Steadily Cunningly guide the Rope Shifting it readily..."

• Ahoy—Hispaniola!

The famous ship immortalized by Robert Louis Stevenson has been recreated. The gallant craft of "Treasure Island" is once more nosing her prow into the sea—a thing of beauty. Metro-Goldwyn-Mayer have reconstructed the Nanuk, used in the filming of "Es-kimo." Nautically accurate in detail, the reborn Hispaniola has been rigged and canvassed so we may journey again with treasure-bound John Silver and his colorful sailor mates.

We are indebted to our good friends of Tubbs Cordage Company for the attractive marine views which are here displayed. Seventy-five hundred pounds of Tubbs rope were used in the rigging of the vessel. Interesting methods were employed to "antique" the heavier shrouds and ratlines by overlaying with stranded cordage and coloring



*"A drowsy ship of some yet older day
—So old a ship—who knows, who
knows?
And yet so beautiful I watched in vain
To see the mast burst open like a rose,
And the whole deck put on its leaves
again."*

with a tar composition.

The elaborate use of rope aboard
the old-time ships of sail is well

recalled by the close-up view which appears. The major portion of this rope selected for the Hispaniola is Extra Superior Manila, indicating how carefully the movie-men work out safety details. How times have changed since the early days of filming sea-going yarns!

Details of the rigging are also depicted and canvas experts among our readers can check falls—standing ends and running ends—yards and tackle, halyards, sheets and clew-lines. Here's where the film director must call in some real salt-water talent. How well the Hispaniola riggers have done their job we leave to our readers.

By the by—our readers will recognize Wallace Beery, who is getting to be a regular sea-dog. Remember him in "Min and Bill" and more recently in "Tugboat Annie"? Well, here he is as Long John Silver—peg-leg and all—a true deep-water sailorman—if there ever was one!

And—thanks to M.-G.-M.—we'll soon have "Mutiny on the Bounty." They're going to build a new ship for this epic of the sea.

Bids, we are told, will be taken from several West Coast yards and a replica of the Bounty will be constructed to "scale, pattern and specification." That's a great yarn, incidentally, and many of our sea-going friends have told us how well the authors followed maritime niceties in the unfolding of the plot. There's a chance of combining in this film version the sequel story "Men Against the Sea." That would be something!

And so Hollywood takes its place as a classification of the Pacific marine market. Shipbuilders take note!



*Pieces of eight . . . 15 men on a dead
man's chest . . . Treasure Island . . .
Wallace Beery, deep water sailorman!*





S. H. Taylor, Jr.

S. H. TAYLOR, JR. APPOINTED PACIFIC COAST MANAGER FOR LINCOLN ELECTRIC

Closely identified with the welding industry for the last seven years, **Seth H. Taylor, Jr.**, has been appointed Pacific Coast Manager for The Lincoln Electric Company, Cleveland, Ohio. Mr. Taylor will make his headquarters at San Francisco.

For the last four years Mr. Taylor has been in charge of the Los Angeles office of The Lincoln Electric Company. Previous to that he spent considerable time at the Cleveland headquarters of that organization where he was engaged in research and applications of production welding.

● Seattle Passenger Men Name Officers

Graham French, of the Pacific Line's passenger department, became president of the Seattle Passengermen's Club on June 1, as a result of that organization's annual election. He succeeds **Gilbert Olson** of the Pennsylvania Railroad.

Elected with French are, **Joslyn H. Waterman** of the Matson Line, vice-president; **Jack Givens** of the Northern Pacific Railway, secretary-treasurer; **George Bambury** of the Alaska Steamship Company and **Harold Schuler** of the Union Pacific, directors for the term expiring next December; **R. E. Carson** of the Milwaukee road and **Kenneth Cross** of the Alaska Steamship Company, directors for the term expiring in June, 1935.

Captain W. R. Meyer brought the Oceanic liner, *Mariposa*, into L. A. harbor on June 17 from Australian ports.

Better protection for Puget Sound shipping is planned by the Coast Guard Service. **Commander R. W. Dempwolf**, chief of the Seattle division, advises that a new base for seaplanes is to be built at Ediz Hook, Port Angeles, with actual construction of the base and three modern planes to start soon.

● Grace Personnel

E. J. Brown, formerly special representative in Central America, has been promoted to the duties of manager of the Panama Agencies Company.

Frank Rehstock, veteran Grace director of Canal activities, has retired, and is making his residence in San Francisco.

● Ave—And Vale!

Captain R. S. Culp has taken up the duties of officer in charge of the United States branch office in San Francisco.

He relieves **Captain F. B. Fryer**, assigned to New York Harbor for command of destroyer division No. 2.

Captain A. C. Paulsen reported one of the heaviest blows he ever encountered on the Mexican coast off Manzanillo—on his latest voyage. His command, the Grace liner *Santa Paula*, was forced to remain in the harbor until the gale had spent itself.

Liddell and Clark of Portland will hereafter represent the Grace Line as general freight agents in their districts. This applies to the three Grace services, the Panama, the West Coast-South America, and the Johnson Line off-shore.

● In Memoriam

Lewis H. Lapham, one of the founders of American-Hawaiian Steamship Company, passed away June 10 in New York, at the age of 76 years.

Mr. Lapham was prominently identified during his career with the development of trade between the two American seaboards, and was the father of Roger D. Lapham, president of the American-Hawaiian Company.

J. L. Hook of McCormick Steamship Company will serve as district purchasing agent for the line—in addition to his duties as office manager. **Sam Harper** is chief purchasing agent at San Francisco.

● Two From "The Crew"

Here's one from the *Columbian Crew*, house organ of the Cordage firm of Auburn fame, which made us snort:

Fast Work

In a western state a railway bridge had been destroyed by fire and it was necessary to replace it. Two days later came the superintendent of the division. Alighting from his private car, he encountered the foreman of the bridge builders.

"Bill," said the superintendent—and the words quivered with energy—"I want this job rushed. Every hour's delay costs the company money. Have you the engineer's plans for the new bridge?"

"I don't know," said the bridge builder, "whether the engineer has his picture drawn yet, but the bridge is up and the trains is passin' over it."



And, speaking of Columbia Rope Company, the C. J. Hendry Company, their San Francisco distributors, get a nice "send off" covering their recent sale of a huge dredge anchor for use in holding firm one of the big fellows dredging the approach highway on the east end of the San Francisco-Oakland Bay Bridge.

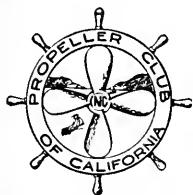
The anchor is an old-fashioned "knee" type, and is a steel casting, weighing fifteen tons—said to be the largest ever cast for this purpose.

Compare it with the fifteen pound anchor held by the man in the illustration.



Three of the models displayed at the "Old-Timer's Day" luncheon of the Propeller Club of California. The *Seminole*, built in 1865, at Mystic, Connecticut, for 26 years in the China trade, making 20 passages around Cape Horn. Her best time from New York to San Francisco was 98 days. (Center) The *Gatherer*, built at Bath, Maine, in '74, was a notorious Hellship, sister of the *Harvester* and *Reaper* . . . never extraordinarily fast but made a number of fast passages and paid her owners good dividends. The *St. Paul*, built at Bath in '74, was originally skippered by Captain F. W. Treat . . . well-known Alaska fishing fleet sailship for a number of years, she was later sold to the University of Washington, converted to a floating marine museum, and so perpetuated.

Official News of the



HEADQUARTERS

320 Market Street, Room 249

San Francisco

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PROPELLER CLUB of California

and human derelicts, and has remained kindly, understanding and admirable through it all.

Through the courtesy of Dick Glissman, we reviewed a fine display of sailing ship models—some of which are pictured on this page. An interesting incident occurred in connection with this exhibit. Chief Cook approached the gallant model of the *Saint Paul* and remarked, "I made two trips around the Cape in this ship. This was my cabin!"

Martin Behrmann, collector of old-time marine photographs, favored us with a display of hundreds of views. Many Propellers lingered over these pictures far into the luncheon hour and after the meeting, to recapture some of the spirit of early San Francisco.

President Harry Haviside was chairman of the day, and gave an interesting prelude to the meeting—telling his boyhood recollections of Jesse B. Cook. President Harry recollected him as a patrolman walking a waterfront beat.

Mr. Cook was chief of police in San Francisco during its most picturesque years. He told of Captain Sterling, Buck Martin, and other sailor men of the good old days. He told of experiences on the front, in Chinatown, and the Barbary Coast in its hey day. Through his eyes we saw again the kaleidoscopic pageant of seventy years—and it was a real inspiration.

● New Members

Harold L. Heakin

Irvin Reed

Frank E. Lewis

● Vacation

The Board of Governors announces that our highly successful

series of luncheon meetings are to be suspended for the regular yearly summer vacation period. However, our Luncheon Committee who are on deck 100%, have plans in the making for resuming these gatherings in the early fall. We'll all await announcement of more of these friendly and educational meetings.

● The Sun Never Sets On Propellers

At this time we extend greetings to our fellow members around the globe:

C. C. Mallory, vice-president, Grace Line, New York City; Capt. Alvin C. Nelson, mooring master, Bahrain Petroleum Company, Bahrain Island, Persian Gulf; Capt. Wm. Murray, port supt., Hilo, Hawaiian Islands; Ed. S. Ramey, port engineer, Luckenbach S.S. Co., Seattle, Wash.; Our San Pedro trio: Tom Forster, mgr., Bethlehem Shipbuilding Corp.; Fred Cordes, agent, Hileone S.S. Co.; Walter Richards, Wilmington Iron Works; Al Fabell, engineer, Marshall Field, Chicago, Ill.; H. R. Lowell, Korbel, California; Linn Boynton, Lodi, California; Capt. John F. Blain, Stockton, California; F. L. Fulton, Fulton's Shipyard, Antioch, Calif.; R. Farrell, Mackay Radio Co., Half Moon Bay, Calif.; Capt. Charles Sorley, mooring master, Standard Oil Company, Estero Bay, Calif.

Events in the offing: Frank De Pue and the Entertainment Committee have all plans and specifications made up for a real maritime banquet; time: Early Fall; place: Some Ship. Watch the wireless bulletins for developments.

Luncheon Meeting

Old Timer's Day proved an innovation which might well be an annual observance. Interest was manifested by many Propellers who were enthusiastic in their praise of the novel plans arranged for this event.

Jesse B. Cook—"Chief" to thousands of San Franciscans—was our honored guest. He was introduced and interviewed by Joseph A. Murphy, vice-president of American Trust Company. Mr. Murphy, a distinguished figure himself, and a very able speaker, brought out many highlights of the chief's career, and paid fine tribute to this "old timer" who has spent forty years in contact with the seamy side of life, crime and criminals,

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FORTNIGHTLY SAILINGS from Manila, Hongkong, Shanghai, Kobe, Yokohama, and Honolulu to San Francisco, and Los Angeles Harbor.

Atlantic - Far East

WEEKLY SAILINGS from New York, FORTNIGHTLY from Boston to Honolulu, Yokohama, Kobe, Shanghai, Hongkong, and Manila.

FORTNIGHTLY SAILINGS from Manila, Hongkong, Shanghai, Kobe, Yokohama, Honolulu to New York and Boston.

*Transshipment New York

Mediterranean - U. S. A.

FORTNIGHTLY SAILINGS from Alexandria, Naples, Genoa, and Marseilles to New York, Boston, Los Angeles Harbor, San Francisco, Cargo destined Oakland, Portland, Seattle or Vancouver subject to San Francisco transshipment

Round-the-World

FORTNIGHTLY SAILINGS between Boston, New York, Havana, Colon, Balboa, Los Angeles Harbor, San Francisco, Honolulu, Kobe, Shanghai, Hongkong, Manila, Singapore, Penang, Colombo, Bombay, Suez, Port Said, Alexandria, Naples, Genoa, Marseilles, thence New York.

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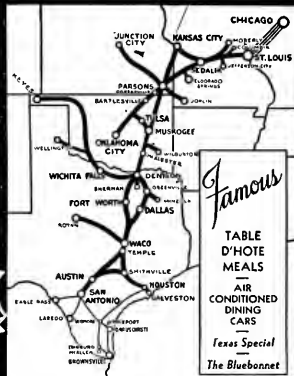
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Captain Joseph Dixon, on his first voyage as commander, brought the California in on the big inter-coastal liner's June 5 arrival. Captain Dixon has both merchant marine and naval background, and has been chief officer of the Mongolia, Virginia, and California.

● Colby Firm Opens New York Office

Announcement comes from Mark R. Colby, President of the Colby Steel & Engineering Company, that the general business conditions have warranted the opening of a New York office in connection with Mr. J. S. Carswell. The address of the New York office is No. 15 Park Row. The telephone number is Barclay 7-2487.

Mr. Carswell is an engineer well and favorably known all along the Atlantic seaboard, having specialized for many years in cargo handling equipment and Marine machinery. He was one of the prime movers in developing the present high speed electric cargo winches, cranes and derricks for material handling, even going so far afield as to have had a very active and interesting part in working with certain designs and details of mooring masts for dirigibles.

Mr. Carswell has worked with the Colby Steel & Engineering Company for a number of years on the sale and installation of the Barlow Marine Elevators and Colby Material Handling Cranes for cargo, dock and lumber storage work. In connection with the Colby Company he has made some very interesting Barlow Marine Elevator installations for some of the more prominent docks and shipping companies along the Atlantic seaboard. The Barlow Elevators are of a special design covered by a number of patents for handling cargo to and from boats and barges to wharves or warehouses. These installations, both along the Pacific and the Atlantic Coast and the Mississippi Valley have achieved records for the safe and rapid handling of cargo which are outstanding; and we predict for this company a very successful business, as it is apparent that many of the older docks and warehouses must be modernized to meet present day conditions.



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Thanks to you, and you, and you, the Roosevelt is becoming one of the most popular New York gathering places for sales and advertising executives. Perhaps it is that dollar lunch served in the Grill. Perhaps it is that we have reduced our room prices to \$4. Perhaps it is the quiet, efficient service.

Come on over and use our table-cloths, too,* and if an extra one is needed to help you plan that campaign — just ask the head waiter.

*Pencils though. Fountain pens and indelible crayons leave us cold.

The ROOSEVELT

B. Gordon Hines, Manager

Madison Avenue at 45th Street

New York City

A UNITED HOTEL

● From the S. S. Tranquil to Keokuk—

Two dollars and a half will buy you the transmission of twenty-five words—handled as a Sea Letter Telegram if you're on an American ship and want to address any point in the United States. The new service, as explained to us by T. M. Stevens, general superintendent, Pacific Division of Radiomarine Corporation, will utilize the U. S. Mail for delivery and has been inaugurated to meet the need for the economical means of radiographing social greetings and messages of a less urgent nature than those requiring fast telegraph delivery ashore.

"The new S. L. T.—meaning Sea Letter Telegrams—service in no way disturbs the efficiency of regular fast radiogram traffic," says Mr. Stevens, "but it does offer Americans on the high seas, among whom are many members of steamship crews, a very low rate on messages of 25 words minimum. The R. C. A. Coastal Station at which they are received will forward S. L. Telegrams to addresses by first class mail or airmail, at the sender's option."

Mr. Stevens received full particulars from Executive Vice-President Charles J. Pannill, Radiomarine Corporation of America chief who recently returned from a meeting at Rome of the Comite International Radio-Maritime at



T. M. Stevens.

which arrangements were worked out with principal marine operating companies, making the service available on foreign as well as American-flag ships.

We opine that S. L. T.'s will be exceedingly popular with shipboard travellers.

Imagine the excitement created by the arrival of a 15-car special boat-train pulling alongside the S.S. President Coolidge—with a capacity list of happy travelers. Tom Cuffe, freight traffic official of the Dollar Line, went to Wilmington to assist in the dispatching of the big electric liner. Hundreds of San Francisco passengers were entrained to the Los Angeles port and seemed to get a kick out of this novel way of starting a sea voyage. The Coolidge was Hawaii and Orient bound.

S. D. McComb, executive of Marine Office of America was a San Francisco visitor during the month—here from New York headquarters.

Mr. McComb was received by Captain Blackstone, local U. S. P. & I. agent and during the course of his visit made an inspection round of the piers under construction for the big Bay Bridge.

Finlay M. Drummond, president of Ingle Manufacturing Company reports the findings of the United States District Court in Chicago which uphold the validity of the Valjean Oil Burning Process patents.

Ingle Oil Burner distributors and users will be gratified to learn that the infringement suit brought against Sears, Roebuck and Company was decided in favor of the plaintiffs. The Valjean Patents are valid and have enforceable rights against infringement, the court ruled.

● Shipmaster Passes

An old-timer has left us. Captain A. W. Pratt, shipmaster, passed away this month after a lingering illness.

Captain Pratt served the Isthmian Line for eight years as master of their intercoastal vessels. He retired from the sea about seven years ago. He will be well remembered by many maritimers on both coasts.

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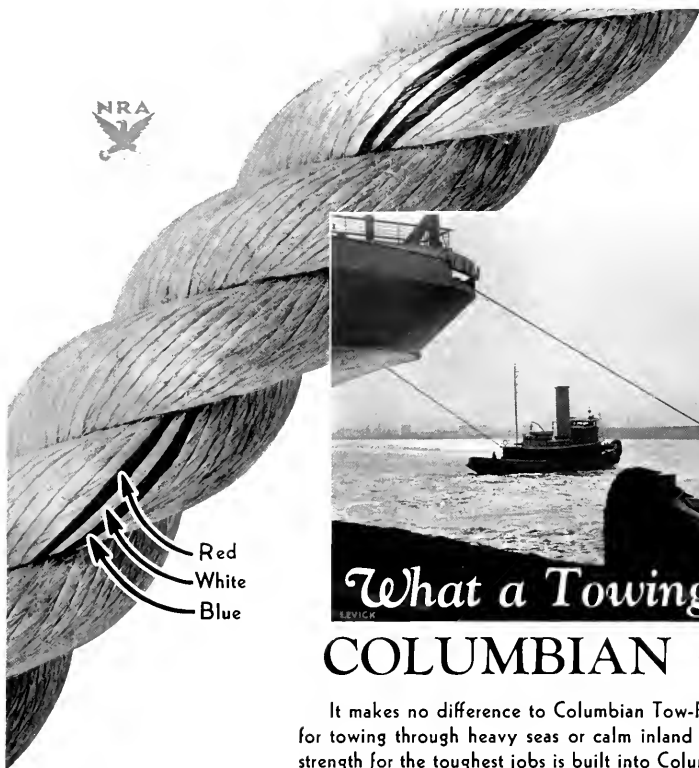
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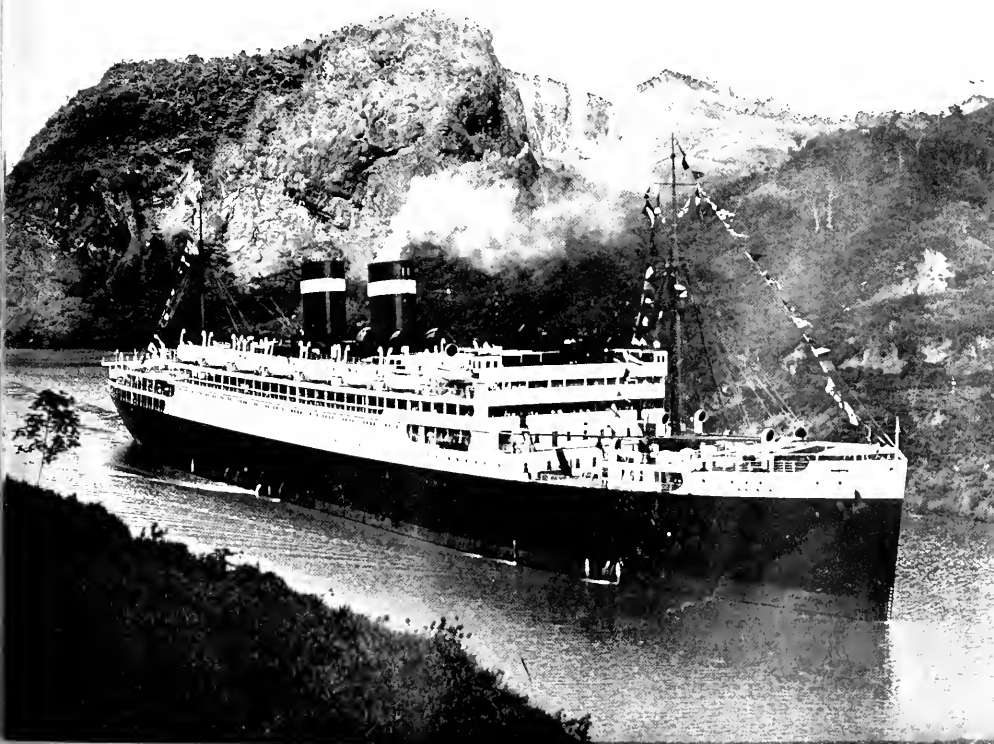
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Pacific Marine Review

AUGUST 1934



Official Organ
PACIFIC AMERICAN
STEAMSHIP ASSOCIATION



Official Organ
SHIPOWNERS ASSOCIATION
OF THE PACIFIC COAST

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UNION OIL COMPANY



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"LOWER FUEL COST PER HOUR"

Pacific Marine Review

The National Magazine of Shipping

VOLUME XXXI

AUGUST, 1934

NUMBER 8

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Our Cover: A beautiful photograph of the Panama Pacific turbo-electric passenger and cargo liner Virginia, in the Culebra Cut, Panama Canal, against the picturesque background of Gold Hill.

Official Organ
Pacific American
Steamship Association

James S. Hines
President and Publisher
Bernard N. De Rochie
Vice-Pres. and Manager

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Member of Pacific Traffic Association

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of the Pacific Coast

Alexander J. Dickie
Editor
M. J. Suitor
Asst. Editor

Chas. F. A. Mann, Northwestern Representative, 1110 Puget Sound Bank Bldg., Tacoma, Washington

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Pacific Marine Review

VOLUME XXXI

AUGUST, 1934

NUMBER 8

Editorial Comment » » »

Community vs Communism

SAN Francisco and its neighboring communities of Oakland, Alameda, Berkeley, Richmond, et al, have just passed through several days of great strain that tested the moral fibre of citizens and brought great loss to many individuals and corporations. Union labor incited by communistic agitators, both within and outside its own ranks, called a general strike, which was made almost universal in that the general strike committee of union labor assumed to seize leadership in the crisis and to issue permits to certain individuals and firms, allowing them a limited freedom to do business along certain specified lines, such as milk and bread delivery, gasoline delivery to doctors, drug stores as open dispensers of drugs but not food or drink, and a very limited opening of restaurants.

The general strike lasted only five days in San Francisco. It was incident to and in sympathy with a strike of longshoremen and other maritime workers that had been dragging along for ten weeks with great financial loss to all parties directly concerned, and an even greater financial loss to business men of San Francisco. A complete account of this strike will be found elsewhere in this issue. There is more than a suspicion that the main factor blocking satisfactory arbitration of the issues in this strike is communistic activity within the Pacific Coast locals of the International Longshoremen's Association.

During the general strike in San

Francisco, it became apparent almost immediately that community spirit was solidly arrayed against the spirit of lawlessness which the anarchist tries to hide under that beautiful name communism. Under the influence of this arousal of community spirit, San Francisco's dapper flower merchant, Mayor Rossi, emerged suddenly a fearless upstanding American citizen, and a very able diplomat and statesman. California's Governor Merriam, but recently elevated from the comparative obscurity of Lieutenant-Governor, and faced with an immediate political campaign to maintain his position, forgets politics, and displays almost Lincolnian qualities of eloquence, rugged honesty, and frank courage, in assuring the people of this great commonwealth that all the forces of law and order possessed by the State would be used to protect life, property, and legitimate business, and to keep the channels of trade open.

Every school house in these communities became a nightly meeting place of citizens' emergency organizations, preparing if necessary to protect their homes and loved ones against riots and other dangers.

Honest union laborites banded together to purge their ranks of red agitators, and to prevent disorder. Within 48 hours the end was in sight, and within five days the General Strike Committee called off the general strike, and the San Francisco Bay region is now at work and will soon be under normal business conditions.

Stevedores' and maritime union strikes are still in an unsettled condition, but under the present public sentiment, the issues involved will undoubtedly be settled by arbitration after the men go back to work.

We have in this whole situation a

perfect picture of the futility of strikes. No objective of this strike will be gained except by mutual agreement, or by arbitration, and any objective that is gained by either of these two methods could have been far more economically gained without the strike. The longshoremen's strike, the marine workers' strikes, and the general strike, have cost well up in the millions of dollars. This cost has accrued to union labor, to employers of labor, and to the community as a whole. This last item, cost to the community, should in all justice be borne by union labor who called these strikes. In our American arrangements there is no practical method for insuring that this cost be so assessed. In Italy, Benito Mussolini and his advisors found a very practical method for insuring that the public cost of labor disputes be borne by the parties who initiated the primary cause of such cost. Since this method has been put into effect Italy has had neither a strike nor a lock out. We recommend to the N.R.A. that they study this method with a view to putting it or some similar scheme into effect for the stabilization of the national industry recovery. It effectually protects labor against exploitation by either their own leaders or their employers.

In the meantime we of the Pacific Coast will have to get our coats off and go to work with stronger wills and cool heads to correct the many displacements of trade incident to these labor troubles, and to win again our rightful volume of seaborne trade both coastwise and overseas.

*Pacific
Marine Review*

Build and Scrap Policies

JAPANESE shipowners and Japanese exporters are rejoicing over the results of their Ship Construction Act of 1932. This act called for the building of 200,000 gross tons of new merchant shipping and the scrapping of 400,000 gross tons of vessels 25 or more years old, all of the new vessels to be of 4000 or more gross tons in size, and 13½ knots or more in speed. Such new vessels were to have a building grant from the government, graduated from 45 yen per gross ton, for 13½ knot ships, up to 54 yen per gross ton for 18 knot ships, the total grant appropriated being 11,000,000 yen.

Results to date are 31 new vessels of 199,310 gross tons, completed or nearing completion, and 93 obsolete vessels of 393,000 gross tons scrapped. A majority of the ships built or building are of 18 knots speed, thus earning the maximum bounty. All but three of these ships are diesel engined.

Thus Japan has created the most modern cargo fleet operated by any nation today, and has at the same time reduced its idle and obsolete tonnage to the lowest percentage figure enjoyed by any of the principal merchant fleets of the world.

It is further claimed that notwithstanding the shipping depression, this new Japanese fleet is earning dividends. We of the Pacific Coast are acutely aware of the fact that this new fleet is dislocating trade. The 18 knot cargo liners, trading direct from Japan to New York, are now carrying the bulk of raw silk from Japan to the United States. Some authorities place the percentage going by these liners as high as 70.

The auxiliary benefits accruing to the Japanese Navy from such a fleet of fast, large capacity cargo ships are very apparent.

Small wonder that the Japanese Shipowners' Associations are being backed by powerful business and military interests, in their request that the government continue the plan for three more years on a basis of 80,000 gross tons of new ships, built each year, and 80,000 gross tons scrapped.

In the meantime, the demand for

scrap iron and steel has grown to such proportions that prices for old ships for scrapping have risen in Great Britain to over \$10.00 a ton. Heavy shipments of scrap steel have been going forward from United States and Great Britain to many countries, notably Japan and Italy.

In the United States, although there is no direct connection between the building of subsidized tonnage, and the scrapping of obsolete tonnage, the natural law of supply and demand has operated to bring about a great scrapping program. During the last fiscal year, 1,800,000 gross tons of merchant shipping were broken up from causes other than stress of weather, and during the past three years, nearly 4,000,000 gross tons have been scrapped. The bulk of this was obsolete or unseable Shipping Board tonnage, sold by that Board at low prices and specified to be scrapped.

Ship scrapping in connection with subsidy programs has been officially adopted by several nations in Europe, notably Italy and Germany. Scrapping as a national policy has been officially considered, but not yet adopted in Sweden and Great Britain.

The "Scrap and Build" program should be carefully studied by United States shipowners as a very practical method of bringing our cargo fleet up to date.

Rationalizing World Shipping

Western European shipping experts have for some time past been playing with the idea of a general policy of laying up tonnage, so as to rationalize the international cargo carrying trades. The latest proposal very clear cut, but in rough outline only, comes from the great British shipping authority, Lord Essenden. The brief statement of his scheme is:

"Shipowners in all countries to undertake voluntarily to lay up 30 per cent of the vessels. By common consent laying-up to be controlled by an International Committee composed of representatives from each country. This committee to review the situation periodically and in proportion as conditions improve to release sufficient tonnage to meet increased demands, without destroying the

chances of improved freights. In the case of companies owning less than three ships, who would, therefore, be unable to lay up 30 per cent of the tonnage, such companies to lay up their tonnage for four months in the year. Tankers, refrigerated tonnage passenger vessels and vessels operating mail services, to make appropriate arrangements, but in accordance with the main principle of laying up 30 per cent of tonnage.

"Details to be arranged and adjusted from time to time in consultation with the International Shipowners' Committee."

This matter of rationalization looked upon by the shipping experts of the non-subsidy nations as being of far greater importance than obtaining subsidy for themselves. Fighting the grants of subsidy other nations. The plain common sense of the matter indicates that there are far more vessels afloat than can profitably be employed in carrying the world's cargoes. The experts of North Europe are therefore changing their line of argument and appear to be convinced that so long as this excess tonnage remains in the competitive carrying trades, any subsidy will be of benefit to the merchant shipper rather than to the merchant shipowner, and that this benefit will accrue most frequently to merchant of countries other than that of the shipowner.

So today almost unanimously the European shipping experts are advising that many ships be laid up, scrapped and removed from competition in order that remaining ships may have reasonably full cargoes and a fighting chance to pay the own way.

The American Merchant Marine, the great majority of its units and trades is suffering from lack of cargoes and even the subsidized liners are for the most part still operating in "the red." This is patent to anyone who can read and must certainly be realized by the personnel who operate these vessels and the stevedoring crews who handle their cargoes, and yet with the whole world shipping in a pit of depressed demand, the marine workers are striking for more pay, less hours, more expensive operating conditions, and enlist the cooperation of all organized labor in America for a general sympathetic strike.

Shipping Problems to be Studied

Secretary of Commerce Daniel C. Roper has appointed an interdepartmental committee to study shipping problems. The personnel of this committee as approved by President Roosevelt is as follows:

South Trimble, Jr.—Solicitor, Department of Commerce, Chairman.

Turner Battle—Executive Assistant to Secretary of Labor.

Harlie Branch—2nd Assistant, Postmaster General.

L. R. Edminster—Agricultural Adjustment Administration.

Henry H. Heimann—Chairman, Sub-Committee on Business Advisory and Planning Council, Shipping Board Bureau.

Thomas Hewes—Special Assistant Secretary of State.

J. B. Weaver—National Recovery Administration.

Not wishing to limit the committee to define its complete scope, the Secretary of Commerce recommended that it give its main consideration to "the administration's future policy in the development of a strong merchant marine"—this to involve as subdivisions of the main subject, such issues as: subsidies versus mail contracts; consolidations of shipping lines to place merchant marine on a more self-sustaining basis; disposal of and compensation for excess tonnage; sound financing of new fleets under the Jones-White act; and the formulation and application of a shipping code.

The committee is to study through the summer, and have its report ready early in the Fall. It is stated that all of the information secured by the Senator Black, Air and Ocean Mail Contract Investigation, has been placed at the service of this committee, and will form the ground work for their study.

The Brain Trust has turned loose on the Merchant Marine. We wish them all the luck in the world . . . both of them . . . they will both need it.

nearly a foot so that the navigable channels most of which were 21 feet now have available only 20.2 feet. Result is that a larger number of cargo carriers will be in operation on lighter load drafts.

Cotton. During the nine months ending April 30, 1934, spinners of the world used over a million more bales of cotton than was used in the nine months ending April 30, 1933. During April, 1934, the use by spinners was 2,160,000 bales—the largest April use since 1929. The seasonal drop in the use of cotton this year amounts to 1.2 per cent from March to April. This compares very favorably with an average drop of 2.3 per cent over the past six years.

Twenty-five Years Ago

PACIFIC MARINE REVIEW

First Established and Only
Exclusively Marine Paper Published
on the Pacific Coast
Seattle, Wash., U.S.A.

Volume VI. MAY, 1909 No. 5

The Allan Dense Air Ice Machine was a prominent advertiser in August 1909, as were also McCabes patent portable ship and warehouse conveyors.

Bids reported on five U. S. Torpedo Boat Destroyers ranged from \$629,000.00 to \$690,000.00. The shipyard of the Moran Company, Seattle, had work well under way on the submarines Barracuda and Pickeral.

The Maryland Steel Shipbuilding Company reported building three twin-screw steel steamers for the American-Hawaiian Steamship Company at about \$549,000.00 each.

Newport News Shipbuilding Company reported four twin-screw steamers, 400 feet long, 10,000 ton displacement, 14½ knots sea speed, deadweight capacity about 5000 tons for the Atlantic Coast lines of the Southern Pacific Railway, at or about \$600,000.00 each. The editor naively remarks "We question if these prices are very remunerative." In addition, Newport News Shipbuilding Company were building for delivery in January and February of 1910, the passenger and cargo steamers, Beaver and Bear, to the order of the San Francisco and Portland Steamship Company. These vessels

had Scotch marine boilers fitted to burn fuel oil. They were very popular for many years on the San Francisco-Portland run.

The Parsons Marine Turbine Company had started their famous experiment with the Vespasian, and were operating that vessel for two round voyages, driven by reciprocating engines, with an expert engineer's crew, and weighing all material consumed by the power plant. Their intention was to then convert her to be driven by a specially designed turbine and determine the possible savings by actual sea test.

The turbiner, Ben My Chree, had made a passage from Liverpool to Douglas in 2 hours and 48 minutes, or at an average speed of 25 knots.

Shipowners complained that the freight and charter market on the Pacific Coast was being ruined by the Navy Department practice of shipping bunker coal to this section in foreign flag tramp bottoms. These tramps, after discharging coal, sought cargoes at any price for the return voyage. At the time, a fleet of 12 large foreign colliers was enroute to the North Pacific Coast with coal for Mare Island and Puget Sound Navy Yards. Rates on lumber were about 50 per cent of normal.

Semi-annual report of H. E. Moss and Company, states: "The year 1908 was about the worst on record for shipping, but a gradual improvement is evident. Modern tramp steamers can now be worked to at least pay interest and depreciation. Tonnage laid up has been reduced to less than one-half of its 1908 volume, and what remains is practically out of date, and cannot compete with modern vessels. The amount of obsolete tonnage is still enormous, fully 1,000,000 tons. The sooner it is disposed of, the less will be the ultimate loss".

The Cunarders, Umbria and Eturia, 25-year-old record holders, (6 days, one hour and 56 minutes from Great Britain to New York) were on sale at a British shipyard. Their owners found them too expensive to operate in competition with modern steamers.

Pacific Marine Review appointed the Manufacturers' Publicity Corporation as its New York agents.

The Oregon Dry Dock Company of Portland and the Heffernan Engine Works of Seattle had each recently added a floating dry dock to their equipment.

Trade Trends

Great Lakes navigation is being affected by the drought in the middle west. Water level has been lowered

California's Record Harvest of Sea Food in 1933-1934

Manufacturing of sardine products, which for years has been one of California's leading industries, soared to a new high in tonnage of this species of ocean fish, handled by canneries and shore and outside reduction plants, for the seasonal year of 1933-34 when 390,874 tons of sardines were harvested off the state coast.

Figures released by the State Fish and Game Commission for the year ending April 30, show that the shore plants used 313,842 tons of sardines. These were canned or made into fish meals and oil. Floating reduction plants used an added tonnage estimated at 77,132. In addition there were thousands of tons taken for the fresh fish markets, bait and for use in making pet foods.

These figures exceed the former banner year of 1929-30 when 327,000 tons of sardines were taken in California ocean waters by shore plants, and while these plants handled less during the past year than for 1929, there were no floating plants four years ago. The past season there were four floating plants operating outside the three-mile limit, drawing upon the same supply of fish as the shore plants. The outside reduction ships are not under the jurisdiction

of the state, and are not restricted as to the amount of sardines to be used by them in making fish meal and oil.

The 17 plants in the Monterey-San Francisco district handled 187,404 tons of sardines; the San Pedro-San Diego 11 plants 125,438 tons.

There was produced by these 28 shore plants 46,707 tons of fish meal, some 16,000 tons more than the preceding year; 9,262,503 gallons of fish oil, nearly 2,000,000 gallons in excess of 1933; and 1,949,400 cases of sardines were canned, exceeding by more than 1,000,000 cases that tinned a year ago.

The floating plants produced approximately 12,861 tons of meal and 2,647,466 gallons of oil.

Sardine products for the seasonal year ending in April amounts to \$8,000,000 in value. The plants have a value of over \$5,860,000 while boats and gear used in taking the fish are worth hundreds of thousands of dollars.

More than 4,000 men and women were given employment during the sardine season, and it is estimated that some 1,500 men were employed on boats bringing in sardines.

Owing to the depressed times, and the necessity for furnishing labor in all lines of endeavor, the State Fish and Game Commissioners were more liberal in giving out permits for reduction purposes the past year. It is a well established fact that the supply of sardines is endangered by too great a take, and it is the opinion of the commissioners, based on research records of the Bureau of Commercial

Fisheries, that the record catch for the past seasonal year will result in a marked decrease in the supply during seasons to come.

The annual report of the Bureau of Commercial Fisheries of the California State Division of Fish and Game lists the poundage of catch of other leading varieties for the calendar year 1933 as follows:

Mackerel 70,118,458; rockfish 749,274; salmon 4,566,841; sole 1,306,834; barracuda 2,850,117; boni 2,025,831; sablefish 1,333,373; yellowtail 1,233,286; halibut 1,226,193; shad 1,132,532; cultus 1,087,804; bluefin tuna 324,216; broadbill or marlin swordfish 817,495; sea bass 943,868; herring 601,445; flound 462,129; anchovy 317,292; strip bass 476,461; smelt 691,964; shark 470,969; kingfish 564,307; and rock bass 329,265.

In addition to the fish handled during the year there were caught by fishermen 3,223,312 pounds of crab, 2,088,260 pounds of shrimps; 2,744,422 pounds of abalones and 425,300 pounds of oysters.

Over 2900 pounds of turtles were brought in from below the international boundary.

From Mexican waters there were also caught by California fishermen and landed in American ports 71,879,925 pounds of fish, more than 10,000,000 in excess of 1932. Of this total 50,894,556 pounds of tuna, 16,677,633 pounds of skipjack and 2,665,600 pounds of yellowtail were delivered to canneries in San Diego, San Pedro and Wilmington.



A portion of Fish Packers Row, Los Angeles Harbor, and a part of the great fleet of seagoing fish boats that have their home base at that port.

Boosting The Support of American Shipping

By Arthur M. Tode

*National President,
The Propeller Club of the United States*

The national life and safety of America are tied up with the sea. Our great traveling and shipping nation originates trade, especially exports, as does no other, and its imports are of enormous value. Its citizens travel on a scale of their own. It has more than a hundred ports and coast lines of impressive proportions. Both to support this commercial life and to render naval strength all effective, a merchant marine is essential.

American people, quick to grasp business opportunities, seem slow to realize the value of a merchant marine and the necessity of giving popular support to American shipping. The merchant marine is of great value to us, not only when the world is at peace, or when we are neutrals, but when we are at war. The United States has progressed too far in civilization and prosperity to remain a dependent nation in the matter of transportation. Surely our countrymen must come to the realization that every nation that has advanced to a commanding position has found necessary for the accomplishment of its greatness, not only a naval fighting force, but a merchant vessel service to carry its traders, its products, its influence.

Marine interests have never forgotten, and all citizens need to be continuously reminded, to take heed from the lessons of the past: the utter dependency of the United States fleet on merchant ships of foreign nations to furnish fuel and supplies on its 1904-05 'round the world passage; the acutely embarrassing shortage of merchant ships prior to 1914 when we were carrying but 9 per cent of our commerce; the lack of American troop and supply transports when the events of 1917 burst

upon us; and the British coal strike in 1926 when our farmers and exporters would have been heavily taxed for transportation of commodities had there not been our own ships available to carry the large movement of crops overseas.

● The Leviathan

At the present time the American public is again being urged to support American shipping. Particular attention has been directed the past weeks to the mammoth "Leviathan," returned to trans-Atlantic service for the summer season. P. A. S. Franklin, president of the International Mercantile Marine, has repeatedly asserted of late his intention of operating an American line free from foreign alliances. He has publicly asked his fellow-citizens to patronize the "Leviathan," now that she has again been placed in commission. The International Mercantile Marine is soliciting support of the traveling public and is openly urging in the press, through its advertisements, to "Book your passage and mark your mail for America's greatest ship—Support the American Merchant Marine."

A clamorous howl arose in certain quarters when the "Leviathan" was withdrawn from service some months ago. As will be recalled, she was laid up because of lack of patronage—lack of support of American travelers. I recall crossing eastward on the "Leviathan" in July, 1932, with but 156 passengers. At the same time two foreign liners left the port of New York within a space of forty-eight hours each carrying between 800 and 1000 persons; most of them spending dollars earned in America. Every citizen in this country has the privilege, of course, of spending his

hard and/or easy earned shekels as he chooses.

Before the war, when we possessed but a few second and third rate ocean passenger liners, there was little inducement except patriotism for travelers to patronize them. Then, as now, patriotic sentiment can be stretched too far. Patriotism we all must have, but when it affects our private purses in pleasure or business most persons are apt to look the other way unless they can clearly discern and are directly confronted with a national emergency.

However, since Congress, in accordance with the will of the American people, has declared in the merchant marine acts of 1920 and 1928 that this country shall have an adequate merchant marine, there have been built passenger ships and freight vessels of the highest type for the trade services of the world. Without passengers, without freight, without mail, these services cannot be maintained. And who shall patronize these splendid carriers? Can we depend on the foreigners and aliens to support these services? Emphatically no! They are too nationalistic, too willing to assist their own, to patronize out of choice the vessels of our or any other flag. In an article by Isaac F. Marcossin, "The American Gangplank," appearing in the Saturday Evening Post, blunt truth is stated: "When the British go to sea for pleasure or business, they travel British; the Germans travel German; the Italians travel Italian; the Japanese travel Japanese; and the French, when they take the sporadic plunge, travel French."

"But these nationals do not comprise the bulk of tourist traffic. We pay the overhead for much of this alien maritime magnificence. As an observant American remarked: 'When European nations build North Atlantic liners, they build them for Americans. Without American patronage, they could not be operated commercially.'"

● Official Patronage

Scan the sailing lists of the trans-Atlantic vessels on any day and observe how many well-known foreigners or alien government officials can be discerned on American ships; then view the list of prominent Americans and leaders of our people sailing on the foreign liners. As we look toward the heads of government at Washington to guide the masses and by the actions and performances set an example and mould public opinion, so can we also expect that their preferences when traveling for business or pleasure will influence their constituents.

When members of the immediate official family, cabinet officers and wives, Congressmen and secretaries, as well as thousands of business leaders and prominent citizens, bestow their patronage on ships of other countries, it is a poor example for the mass of their countrymen. Especially is this so at the present time with millions of unemployed in the nation, with the leaders of industry attempting to give or make jobs, with all of us being appealed to from the White House to assist emergence from the depression. Money expended for travel on American ships remains for the greater part in our own country, spent by the shipping companies for fuel, for maintenance and repair, for supplies, for wages

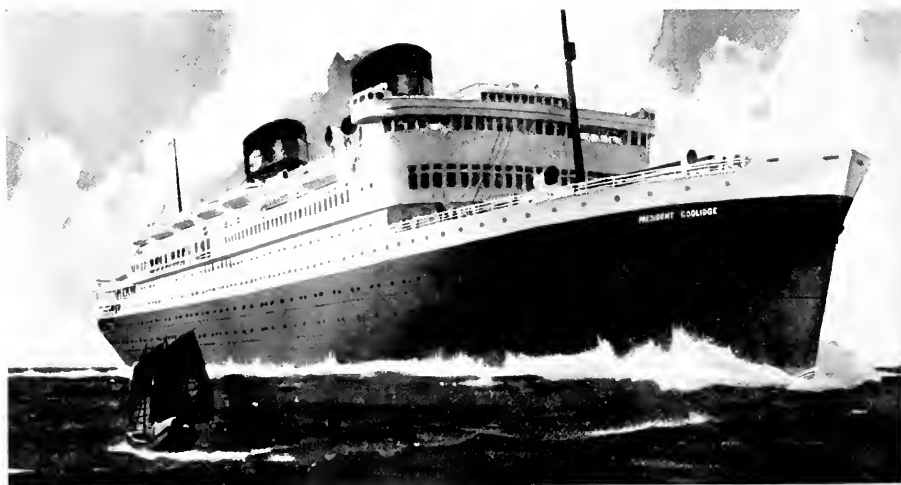
and other services. This money enables those Americans who derive their livelihood from the American marine industry to purchase food and clothing, pay their rent and taxes, and buy the necessities of life from their fellow Americans.

Why should not the ordinary citizen traveling abroad justly assume that the prominent Americans who travel continuously on foreign ships must be making the logical choice; that our ships probably do not render equal accommodations and service? There can be no brief if American companies do not render equal transportation facilities—but they can and do. Criticism can, however, be justly directed against many Americans who frequently travel abroad and never have (and probably never will) patronize our own services. There is a Wall Street banker, as an example, who has made 46 crossings of the Atlantic and has never yet sailed on an American flag vessel; and his is not an unusual case. In the North Atlantic passenger trade American citizens constitute about 70 per cent of the total, pay 85 per cent of the fares, and occupy 95 per cent of all first-class cabins. Is it not obvious, therefore, that the palatial passenger ships built by foreign countries in the last few years have been placed in service, not for their own nationals, but to secure the good

American dollars that are exchanged for this transportation? If our traveling public bestowed, as it certainly should, only half of its patronage on vessels of its own country, there would be no question of our evincing an adequate merchant marine.

● Mail via American Ships

The present appeal to "address mail via S.S. Leviathan" is a timely one. We have all heard much regarding the ocean mail contracts and subsidies the past year, due principally to the publicity attending the Black Committee Investigation. The "Leviathan" has no mail contract; this vessel is paid on a poundage basis for what she carries. There are tens of thousands of American business concerns dealing overseas, as well as millions of private correspondents, who could support American shipping by addressing the mail so as to be forwarded on American vessels. Foreign concerns make this a frequent practice in their correspondence, even when soliciting the sales of their products in this country. A certain high-class, well-known British manufacturer of men's clothing always forwards mail to his American customers distinctly marked via a particular English liner. One of his prospective customers wrote him on one occasion, su-



Modern American passenger and cargo liners carry American prestige on the seven seas and promote American commerce in the ports of the world.

sting that in his solicitation of our business it might be more favorably received if his correspondence was sometimes addressed via an American ship. The Britisher politely acknowledged and admitted the suggestion; in fact, even offered to carry it out in the future, but—the mail still reaches our shores always addressed via the S.S. Aquitania."

Why do American importers, bringing goods to this country to sell to the American people, permit the goods to be transported to our shores on foreign ships? Why do not American exporters make it their business to ship their products in their own country's vessels? Cannot these exporters and importers and manufacturers be made to realize that the commerce of this nation depends upon ships to transport it and that unless we control the medium of carriage we are in the ridiculous position of being entirely dependent on other nations for the service which we are better situated to render for ourselves? Unlike those of other nations, our vessels are built exclusively for our own trade, and even of this we carry only approximately 40 per cent. Three-quarters of England's merchant marine find employment in outside trade; two-thirds of her own trade is carried in vessels of her registry, while one-third of American exports and imports go via the British-flag routes. It is high time the American people realized that not only their security in war, but their prosperity in peace depends greatly on the building and maintenance of an effective merchant marine. Furthermore, that they appreciate no merchant marine can survive without their support of American shipping.

● Ship via American Ships

The principal speaker at the National Maritime Day Banquet on May 22nd, last, sponsored by the Propeller Club, Port of Savannah, was the Hon. Daniel C. Roper, Secretary of the Department of Commerce. In an impressive address to a distinguished company of Savannahians he urged a sounder and more adequate merchant marine and declared: "Prior to 1916, our merchant marine carried about one-tenth of our foreign trade and today it transports approximately one-third. There has also been an important change in the nature of our exports, as manufactured products now constitute a

larger percentage of our total exports than raw materials. As an economic necessity, therefore, the foreign trade development of the United States depends largely upon the use of American ships for carrying American goods. It is essential that we maintain an American-flag tonnage on important trade routes to serve the needs of our commerce and to safeguard against war and other emergencies which might disturb the normal flow of American commerce. The merchant marine is an important and vitally indispensable factor in our national defense. There is an old saying that a navy is no stronger than its merchant marine. It is so definitely related to the progress of our country that it deserves the closest study and the sympathetic and continuing interest of all American citizens.

"Our position as a creditor nation and the future development of our foreign trade is now dependent to a very large extent upon an adequate merchant marine. As a corollary of this situation, we recognize that the drastic decline in available volume of water-borne commerce has imposed a severe handicap upon us. As foreign trade is revived on a world-wide basis, the United States must increase its trade in ratio to the world increase or the merchant marine of other countries will develop and prosper at the expense of the American Merchant Marine. We must have complete cooperation among all agencies in attaining results for the common good. American shipping bottoms must have their rightful consideration in transporting an equitable share of American commerce."

● Tariff Bargaining

Speaking to 400 members and guests of the Propeller Club, Port of New York at their banquet observing National Maritime Day on May 22, Charles W. Taussig, president of the American Molasses Company and adviser to President Roosevelt on tariff matters stated: "A greater volume of international trade is certain to result and that will mean more ships. When the time comes we must realize that our national well-being as well as our commercial importance will require that these ships be of American registry." The same night, the members of the Propeller Club, Port of Jacksonville at their National Maritime Day observance heard Sidney J. Brown and Sen. Park

Trammell, chairman of the naval affairs committee of the U. S. Senate declare: "Support of American Shipping means support of American enterprises." Explaining the policy of European countries in shipping entirely through their own shipping lines and advocating adoption of the same policy for American shippers it was stated: "A great majority of American shipping is over foreign lines at the present time" and figures were cited in proof of the statements.

In proclaiming the observance of National Maritime Day as a part of the observance by the Propeller Club, Port of Albany, N. Y., Mayor Thacher of that city stated: "The employment of American vessels, crews and services is of vital importance to our commerce and to aid in furnishing a proper complement of supply ships for our Navy in time of emergency. Our position as a maritime nation is dependent upon the interest and encouragement shown by our citizens in the advancement of American shipping."

Addressing a mass meeting during National Maritime Week on May 25 at Norfolk, Va., under the auspices of the Propeller Club, Port of Hampton Roads, Rear Admiral Hutch I. Cone, chairman of the advisory board of the Shipping Board Bureau, Department of Commerce declared: "American shipping is in competition with the world, and with its higher wages, better food and greater cost of ships it will find itself impossible to compete unless the differentials are removed. Forty-five companies engaged in overseas traffic, with an investment of \$347,000,000, broke about even. Twenty-three lines in intercoastal trade, with an investment of \$142,000,000, suffered a \$5,000,000, loss. Thirty-eight coast-wise companies, with an \$86,000,000 investment, lost \$3,700,000. We must interest our fellow citizens in patronizing American flag ships" Admiral Cone continued. "It comes down after all to the shipper and the passenger, who must be encouraged to use the ships of their own country." At this same meeting Joseph B. Weaver, Deputy Administrator of the NRA in charge of maritime codes stated: "American shippers and importers must work for the maintenance of the American merchant marine or they will have no foreign trade at all. We can not hope to do business in countries where the American ships do not ply."

..... *New*

Lighthouse Tender Hemlock

Berg Shipyards, Seattle, Deliver Successful Steam Vessel for Lighthouse Service in Alaska Waters

The Berg Shipbuilding Company of Seattle recently held successful trials of the steel twin screw steam tender Hemlock, built for the U. S. Lighthouse Service, to be used in the 16th District with headquarters at Ketchikan, Alaska.

Hemlock is of very neat design and is arranged especially for operation under Arctic conditions. Her principal characteristics are:

Length over all
.....174 feet, 6 $\frac{1}{2}$ inches
Beam molded32 feet, 0 inches
Depth top of maindeck to
top of keel, 14 feet, 6 inches
Draft mean10 feet, 7 inches
Displacement770 tons
Horsepower indicated1000

The steel hull has a slightly raked stem with a long arc on the forefoot and an overhung stern. Her main deck is continuous with two erections—the fo'castle and the main deck house. The shipside is carried to the level of the top of main deck house and the upper deck extended to cover the side gangways so that these gangways are completely enclosed. Three feet square openings fitted with weather-tight shutters and air ports insure comfort both winter and summer. Atop the main deck house are an upper deck house aft and the pilot house. The fo'castle is topped with a turtleback deck, and on the flat part of this deck is installed a reel operated from the anchor windlass and fitted with 300 fathoms of special 1-inch wire cable and a 1000-pound anchor for mooring at sea.

In the hold under the main deck, the length of the hull is divided into seven compartments by six bulkheads, four of which are water tight, and two oil tight. Beginning at the stem, these compartments are the forepeak tank; structural fresh water tank; crew's quarters and main hold; fuel oil tanks; boiler room; engine

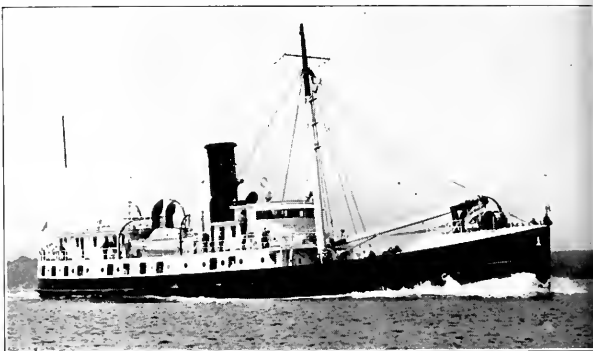


Photo by Harry A. Kerwin, Seattle.

U. S. Lighthouse Tender Hemlock on her trials.

room; and after peak.

A half deck is fitted over the fresh water tanks forward, and extending into the hold. On this half deck are arranged the crew's quarters and chain lockers. Similarly aft, a half deck over the shaft alley takes care of petty officer's quarters, store rooms, and steering gear. At the after end of the main hold, and just forward of the mast, is installed the steam winch that serves the derrick boom. A large drinking water tank occupies the space between the mast and the after bulkhead of the hold.

The main deck house contains galley, refrigerator rooms, crew's mess room, cook's and steward's rooms, officer's mess, officer's state rooms, and officer's bath. In the upper deck house are quarters for the superintendent and radio room. Captain's quarters are in pilot house. Hot and cold water, and steam heating systems are installed in all quarters. Steel hull in way of quarters is heavily insulated.

The main deck well, known on lighthouse tenders as the buoy deck, is fitted with buoy parts, and with

heavy cleats, deck pad eyes, all rings for handling and securing buoys and other heavy cargo incident to servicing aids to navigation. The deck and the hold is equipped with steel derrick mast and boom, serviced by a steam winch.

● Power Plant

Two Foster - Wheeler sectional header type oil-burning watertube boilers supply steam at 225 pound throttle pressure. These boilers each have 2514 square feet of evaporating surface on one-inch and two-inch tubes. The 36-inch drum is forged Lukens steel. Oil burners are Baco & Wilcox Mayflower type. A auxiliary starting boiler of the Moley steam generator type is fitted. All boiler room equipment such as water glass, CO₂ recorders, thermometers etc., is Ashcroft-Hancock.

Steam from these boilers is utilized in two Washington Iron Works vertical triple expansion engines with cylinders, 11 $\frac{1}{2}$ inch by 19 inch, by 32 inch and 24 inch stroke, fitted with piston valves operated by Stephenson links. Both engines exhaust i-

one Worthington condenser fitted with 1228 $\frac{3}{4}$ -inch tubes and having 800 square feet of cooking surface. Two cast iron propellers, 7 feet, 8 inches in diameter, and four bladed. Thrust of these wheels is transmitted to the hull by Kingsbury bearings. Rated power of both engines is 1000 indicated horsepower at 150 r.p.m.

Every valve in the engine room with the exception of the main engines is Powell valve. Pneumercator fuel tank gauges are fitted. All pumps are Worthington. These include two fuel oil pumps, two feed water pumps, circulating pump, air pump, sanitary and fresh water pumps.

All deck machinery was furnished by Allan Cunningham of Seattle, including windlass, cargo winch, boat hoist and steering engine.

The feed water heater is of the Davis Paracoil type.

An oil burning range is fitted in the galley. All ice boxes are Frigidaire equipped.

Among the pilot house equipment we noted two Alexander McNab engine direction indicators; Sperry Master gyro compass with three repeaters; Sperry course recorder; Sperry searchlight; Koess radio direction finder; Kelvin-White spherical compass in Max Kuner mountings; Tryfon whistle and Submarine Signal Company fathometer.

On trials the top round trip speed



Group of officials on trials of Hemlock. Left to right: Jim Robertson, foreman machinist; George Wright, foreman steelworker; James R. Meston, yard superintendent; G. C. and W. C. Nickum, naval architects; Thomas P. Fowler, superintendent of construction for lighthouse service.

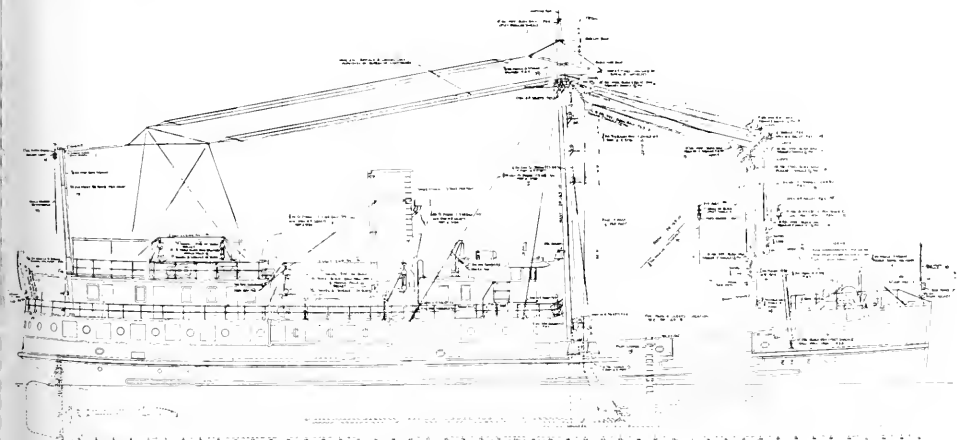
of the Hemlock over the Vashon Island measured mile course was 12.5 knots. Average for four round trips was 12.17 knots, with engines turning at 158 r.p.m. Indicated capacity of engines showed 180 horsepower above rating.

The hull proved very stable with a metacentric height of 3 feet, 3 inches, and no vibration was observed at any speed—a very unusual feature for ships of this size and speed.

She maneuvered a 1200-foot circle in 3 minutes, 5 seconds, and on reversing came to stop from full ahead in 55 seconds. Old timers are predicting she will be a first class boat in the ice.

Credit for the successful completion of the Hemlock goes to George Nelson, Oscar Pripp, and E. Baumann—president, vice-president, and treasurer, respectively, of the Berg Shipbuilding Company; to T. P. Fowler, Superintendent of Construction for the U. S. Lighthouse Service; to Marius Anderson, Mechanical Engineer for the pipe plans in engine and boiler rooms; and to W. C. Nickum, Naval Architect, for hull and deck detail drawings, and all wire and pipe plans outside engine and boiler rooms.

Captain W. H. Barton will be in command of the Hemlock, and Ford Clark will be Chief Engineer.



OUTBOARD PROFILE AND RIGGING PLAN OF LIGHTHOUSE TENDER HEMLOCK.

.... The Longshoremen's Strike of 1934

*A Statement by Thomas G. Plant, President of the Waterfront Employers' Union
of San Francisco, Made before the National Longshoremen's
Board on July 11, 1934*

The Waterfront Employers Union is a voluntary association of employers of longshore labor in the Port of San Francisco. Its membership is made up of steamship companies which serve this port, both of foreign and of American ownership, and of contracting stevedores or companies whose sole business is the loading and unloading of vessels for hire. It was formed in 1914 for the specific purpose of dealing with the question of longshore labor, and has no power to deal with and has never dealt with any other question.

Longshoremen are the laborers who are employed to do the work of loading and unloading of vessels.

The occupation is casual and fluctuates widely, depending upon the volume of cargo moving. Men therefore are hired as jobs are available. The operation of some companies is reasonably steady, making it possible to furnish almost steady employment for the same men, but in the case of most companies the operation is not steady, such as for example a company with one sailing every two weeks or a sailing once a month, making regular and steady employment impossible. The men as a result seek their jobs from dock to dock; the same man will find employment during one week from several different employers.

Generally speaking, the men organize or are organized into gang units of equal strength, and they are so employed. They vary in ability and interest, a condition to be expected. The gangs of the best men have been employed in the past by the companies with steady operations, or they have been given the preference in employment by companies which did not have steady operations. The poorer gangs have been given what work was left over. The result of this

condition has been a considerable disparity in earnings.

● Conditions at San Francisco

In 1933 the average number of longshoremen employed in San Francisco was approximately 1300, and the largest number employed on any one day was approximately 2500. Of the 1300, approximately 900 had practically steady employment with companies whose operations were fairly regular. In contrast to the above, we understand that the present membership of the International Longshoremen's Union at San Francisco exceeds 4000, many of whom have but recently come upon the San Francisco waterfront.

For about fourteen years prior to July, 1933 the wages and working conditions for longshoremen of this port were determined by the Waterfront Employers Union and an independent union (that is, a union not affiliated with the American Federation of Labor) of longshoremen called the Longshoremen's Association of San Francisco, under the provisions of several agreements which were entered into between these two parties. These agreements gave preference in employment to members of the Longshoremen's Association. As the supply of members of that Association was at all times sufficient for the work requirements of the port, the result was that none but members of the Longshoremen's Association were employed by members of the Waterfront Employers' Union.

The condition of employment, or means of hiring, was also determined by the Waterfront Employers Union and the Association of longshoremen above referred to. The steady gangs reported direct to their jobs; other gangs were given their work orders the night before, often by telephone through their foremen; the remaining

longshoremen reported to the waterfront, and there employers with last minute requirements unfilled could find them and employ them.

During the period of time referred to, disputes as to infractions of working rules, or abuses, were referred to a committee of employers and employees for adjustment.

The Longshoremen's Association endeavored to hold its membership at a figure sufficient for the ordinary work requirements of the port, with the purpose of assuring a reasonably satisfactory earning for each member. Earnings dropped unavoidably during the depression following the year 1929; furthermore, there were no means provided in the old system of hiring to prevent the disparity in earnings referred to above.

On the whole, during this period of fourteen years, a satisfactory employment condition for longshoremen existed. During that period there were no disagreements and no strikes. On the contrary, there was a high degree of efficiency, and the men, generally speaking, were satisfied.

● National Recovery Act

In June of 1933 the National Industrial Recovery Act became law. Its two-fold purpose was to stabilize competition among industries, and to spread work and to increase and to spread earnings more widely among labor. None of the provisions of the Act became applicable to an industry until a Code, as provided in the Act has been adopted or imposed for that particular industry. While work on a Code has been under way almost continuously since last August, no Code has yet been agreed upon for the shipping industry. This is due to many causes, among them being the fact that the shipping industry is international in its character. Vessel of all nations call at American ports

of which vessels will be subject to the provisions of the Code when it is proposed, and so far it has been impossible to secure a complete agreement among the representatives of the nations interested.

Even though no Code has been adopted for the shipping industry, the Waterfront Employers of this port have evidenced their willingness to aid in the Recovery program and to face the increased costs of operations, even though they were denied the benefits of stabilized competition which it was hoped would accrue from the adoption of a Code.

Section 7(a) of the National Industrial Recovery Act (which has now become a part of the general law being incorporated in the Joint Resolution of June 19, 1934) reads as follows:

"Employees shall have the right to organize and bargain collectively through representatives of their own choosing, and shall be free from the interference, restraint, or coercion of employers of labor, or their agents, in the designation of such representatives or in self-organization or in other concerted activities for the purpose of collective bargaining or other mutual aid or protection; (2) no employee and no one seeking employment shall be required as a condition of employment to join any company union or to refrain from joining, organizing, or assisting a labor organization of his own choosing; and (3) employers shall comply with the maximum hours of labor, minimum rates of pay, and other conditions of employment, approved or prescribed by the President."

The purpose of this Section was to provide for the selection of representatives of labor for the purpose of collective bargaining.

The Act left to the individual Code for each industry the determination of minimum wages (to increase earnings) and of maximum hours (to spread employment).

In the last draft of the Code for the Shipping Industry Article V—LABOR, Section 4, provides:

"Longshoremen, tally clerks, checkers, cargo repair men, maintenance men, and all other dock workers, except watchmen, baggage clerks, and ship caretakers, shall not be employed for more than forty-eight hours in any week averaged over a period of four weeks."

and under the same Article, Section provides:

"The minimum rates of pay at each port for longshoremen, tally clerks, checkers, cargo repair

men, maintenance men, watchmen, baggage clerks, and all other dock workers employed on an hourly or daily basis shall be as specified in the applicable division or subdivision codes; provided, however, that pending the adoption of the division or subdivision codes the wages actually paid on February 1, 1934, shall not be reduced."

● Wage Increase

On December 10, 1933, the Waterfront Employers of San Francisco voluntarily increased the basic wage for longshoremen from 75 cents to 85 cents per hour. Shortly prior to or shortly after the adjustment at this port, the Waterfront Employers at all other Pacific Coast ports made a similar increase. The overtime rate was fixed at \$1.25 per hour. This rate is paid for all work after 5 P.M. irrespective of when the man goes to work, so that a man who starts to work at 5 P.M. gets \$1.25 per hour from the moment he begins work.

● Organization of I. L. A.

During the last half of 1933 and the early months of 1934, the International Longshoremen's Association (hereinafter referred to as the I. L. A.), long inactive on the Pacific Coast, organized actively. The I. L. A. is affiliated with the American Federation of Labor. The Longshoremen's Association of San Francisco, referred to above and as previously mentioned, was not so affiliated. During the fall of 1933 there were one or two tests of strength by the new I. L. A., of which only one need be mentioned.

In September of 1933 some members of the new Union, refused employment for reasons other than those they claimed, made a complaint to the Regional Labor Board that they were denied employment because they were not members of the Longshoremen's Association of San Francisco, and that the preferential employment contract then in effect between the Waterfront Employers Union and the Longshoremen's Association of San Francisco, providing for such discrimination, was in violation of Section 7 (a) of the Recovery Act and therefore illegal.

A Board of Arbitration was appointed which, after investigation, found the charges sustained, and informally ordered the employers to hire members of the International Longshoremen's Association as well as members of the Longshoremen's Association of San Francisco, without discrimination. Thereafter, mem-

bers of both Unions were employed without discrimination.

A request was made in January of this year that the Waterfront Employers meet with local officials of the I. L. A. to discuss demands. The employers met with the officials of the I. L. A. and advised them they were unable to discuss their demands because of the then existing agreement with the Longshoremen's Association of San Francisco, and also because the employers felt that there was insufficient evidence that the majority of the longshoremen of this port had joined and had selected the I. L. A. as their representative for the purpose of collective bargaining.

● First Demands of I. L. A.

In the meantime longshoremen were joining the I. L. A. in increasing numbers. Early in March a request was made by the I. L. A. through Mr. George Creel, then Regional Labor Director for California, for another meeting between the Waterfront Employers and the local officials of the I. L. A. Being satisfied by that time that the majority of the longshoremen of this port had selected the I. L. A. as their representative for collective bargaining, the Waterfront Employers met with these local officials of the I. L. A. on March 5th. Two demands were made by the I. L. A.:

1. That the Waterfront Employers at San Francisco contract in behalf of all employers at all Pacific Coast Ports. To this the Waterfront Employers replied that they did not represent the employers at other ports and could not act for them or bind them.

2. That the Waterfront Employers hire no one but members of the I. L. A.—in other words, a closed union shop. To this the Waterfront Employers replied that this would not be granted—one reason among others being that General Johnson, National Recovery Administrator, in his Labor Day speech had said:

"If an employer should make a contract with a particular organization to employ only members of that organization, especially if that organization did not have 100 percent membership among his employees, that would in effect be a contract to interfere with his workers' freedom of choice of their representatives, or with their rights to bargain individually, and would amount to employer coercion on these matters which is contrary to law."

Meetings followed before Mr. George Creel, at which the Water-

front Employers maintained the position they had taken.

● Threatened Strike of March 23

Dissatisfied with the position of the employers, the I. L. A. called for a strike vote of all Pacific Coast ports, and the strike vote carried. The strike was set for March 23rd. On March 22nd, yielding to the request of the President of the United States, the strike was postponed, pending an investigation of the issues in dispute (a coastwise agreement and a closed shop contract) before a Fact Finding Commission to be appointed by the President.

The Board, appointed at once, consisted of Charles A. Reynolds of Seattle, Henry F. Grady of San Francisco, and J. L. Leonard of Los Angeles; all three Regional Labor Directors in their respective cities.

Hearings commenced in San Francisco on March 28th and continued through to March 31st.

On April 3rd, after the hearings had been concluded, and suggestions had been made by the Board for the settlement of the dispute, the employers submitted a proposal which, after discussion, the Board recommended for acceptance, and the same afternoon the longshoremen advised their willingness to proceed under the terms of the proposal. The acceptance of this proposal was informal, at the Board's suggestion, making it a gentlemen's agreement, to show good faith and good feeling.

The essence of this agreement was recognition of the I. L. A. as the representative of the majority of the longshoremen of the San Francisco Bay District for the purpose of collective bargaining. The reservation of the right to recognize minority groups was to preserve the right of non-union men or of men not members of the I. L. A. to employment. A second important feature was the agreement to establish a Hiring Hall in order to correct complaints against the hiring system previously in effect and also to effectuate a more equitable distribution of the work among the men employed in the industry, and the agreement to share the supervision of this Hall with the longshoremen.

For the settlement of disputes the agreement adopted Sections 10 and 11 of the proposed Shipping Code. These Sections provided, first—mediation before a local board; second—mediation before a National Board;

third—arbitration upon the concurrence of both parties.

Under the terms of this agreement committees of employers and employees were selected, and proceeded during the balance of April with their discussions on wages, on maximum hours, on working rules, and on the plans for the joint operation of a Hiring Hall.

Satisfactory progress was made on every subject but wages. The men demanded \$1.00 per hour; the employers felt that the 10c per hour increase to 85 cents per hour made in December 1933, was, under the circumstances, all that they could reasonably be expected to pay. The Committees deadlocked on this issue. Local mediation, the first step provided by the agreement for the settlement of disputes, was resorted to. While this Board was meeting, and before it had concluded its hearings a communication was received from the San Francisco Local of the I. L. A., as follows:

"The following motion was unanimously concurred in by Local 38-79, International Longshoremen's Association, at a special called meeting, held Sunday April 29th, 1934.

"**Motion:**—Regularly moved seconded and carried, that unless something definite shall have been arrived at by the joint committee of five and five and the committee of two and two, by Monday Evening Eight P. M. May 7th, 1934; negotiations shall be discontinued.

Respectfully yours,

(Signed) IVAN F. COX
Secretary-Treasurer Pro tem
Local 38-79, I. L. A.

"P. S. Copies transmitted to International President Joseph P. Ryan, Pacific Coast District President William J. Lewis and Pacific Coast District Secretary John C. Bjorklund."

On May 5, 1934, the Local Mediation Board reported that it could not reach an agreement. The employers requested that national mediation—the second step provided by the agreement—be used. The officials of the I. L. A., acting under the resolution quoted above, refused. On Monday, May 7th, in a last effort to adjust the difficulties peaceably, the employers despatched a letter to Mr. W. J. Lewis, District President of the I. L. A., as follows:

"I again respectfully urge that you concur in my suggestion of

Saturday that the employers prepare, from their standpoint, a brief concise statement of the negotiations and the results thereof to date, emphasizing, again from their standpoint, what they feel you Association and its members have gained so far. This statement would submit to you before we distribute it, so that you can be sure that it is a fair statement of the position the employers have taken during the prolonged negotiations."

No reply was received, and the person who delivered the letter in person was advised there would be no reply.

● Repudiation of Mediation

On May 9th, without further notice to the employers, the strike commenced.

Simultaneously a longshoremen strike was commenced at all other United States Pacific Coast ports. The agreement of April 3rd applied specifically to the port of San Francisco. The employers at other Pacific Coast ports had accepted it in principle, but the representatives of those ports, not satisfied from the evidence at hand that the majority of their longshoremen had accepted the I. L. A. as their representative, requested that elections be held under the auspices of the Regional Labor Boards to determine that point. At some of these ports the elections had not been completed. At Seattle the election had been held but the results had not yet been announced. In consequence, the representatives of the men at these ports were not yet chosen, and collective bargaining was not yet possible. Nevertheless the men at these ports went out on strike.

● Federal Mediation

Assistant Secretary of Labor, Mr. Edward F. McGrady, arrived in San Francisco shortly after the middle of May to assist in settling the strike and conferences between Mr. McGrady and representatives of the I. L. A. and between Mr. McGrady and spokesmen for the Waterfront Employers, commenced at once.

As Mr. McGrady deemed it essential that all Coast ports unite in some program in an endeavor to settle the dispute, representatives of employees of the other Pacific Coast ports proceeded to San Francisco and joint conferences were held with the Coast representatives of the I. L. A. before Mr. McGrady and the members of the President's first Mediation Board before referred to.

The wage dispute, which precipitated the strike, was not advanced as an issue. Instead the employers were again confronted with the original demands made on March 5th:

First—That a coastwide agreement be made.

Second—That the I. L. A. be granted a closed union shop.

Third—That the I. L. A. be granted exclusive control of the hiring halls.

As the employers had convincing evidence that a substantial number of their former longshoremen-employees were not members of the I. L. A.; as the granting of the demands would either deprive these men of their right to employment or force them against their will into membership in the I. L. A.; as the plain wording of the law and of various interpretations and rulings made closed shop contracts illegal, the employers refused the demands.

As it became apparent that the merchants of San Francisco and the public generally were being affected, the Chamber of Commerce of San Francisco and the Industrial Association of San Francisco were called in, and since then the Industrial Association has taken an active part in the negotiations.

On May 24, 1934, the International President of the I. L. A., Mr. J. P. Ryan, arrived from New York. After a general meeting on May 25th, at which were present representatives of the I. L. A. from the various Pacific Coast ports, and representatives of the employers from the major Pacific Coast ports, a small committee of employers and employees was appointed to endeavor to work out an agreement on fundamentals which would be effective at all Pacific Coast ports.

● Maritime Demands Introduced

At the first meeting of this new Committee, the representatives of the I. L. A. presented for the first time an entirely new demand. This was, that regardless of any settlement which might be made of the longshoremen's dispute, the Waterfront Employers must contemporaneously settle satisfactorily all the demands of various maritime unions, which, following the longshoremen's strike on May 9th, had also gone on strike.

The Waterfront Employers of San Francisco was entirely helpless in the premises. Its membership, as has

been pointed out, is made up of steamship companies which serve this port, of foreign as well as of American ownership, and of contracting stevedores. The strike of officers and seamen was totally ineffective in the case of many companies, proving that the vessel employees of those companies were not members of the striking unions. No vessels have been prevented from sailing because of the seamen's strike, and many companies have not had a single member of their licensed personnel go on strike. Other companies which do not serve this port were affected by the seaman's strike, but were not affected by the longshoremen's strike. Other companies, such as oil companies, whose business requires no stevedoring function and who therefore are not represented in the membership of the Waterfront Employers Union, were affected by the seamen's strike. The demands of the striking maritime unions would affect all vessels of the American Merchant Marine, no matter where they operated, and obviously could not be settled as an incident to the settlement of a longshoremen's strike in Pacific Coast ports. The Waterfront Employers Union was totally without authority or jurisdiction and the representatives of the I. L. A. were so advised. They were told that there was no association of American owners authorized to deal on behalf of all American owners with the demands of the striking maritime unions; that it was a matter which would have to be handled with each separate American owner; that many American owners, not affected by the seamen's strike, showing that their employees were not members of the striking unions, would insist quite properly upon elections under the auspices of the Regional Labor Boards to determine who the employee representatives might be; that the few American owners represented in the membership of the Waterfront Employers Union would be willing to have such elections held among their vessel employees; that the Waterfront Employers Union could not so commit other American companies which they did not represent.

After two days of explanation and discussion the demand for the settlement simultaneously of the seamen's demands was withdrawn on May 27th by the Pacific Coast Executive Committee of the I. L. A. in the presence

of Assistant Secretary McGrady. Negotiations on the demands of the longshoremen were then resumed, and on May 28th a proposal for settlement was drawn up which met with the full approval of International President Ryan, of the Assistant Secretary of Labor and of the Federal Mediators.

● Proposal of May 28, 1934

This proposal provided for the recognition of the I. L. A. at all Pacific Coast ports.

It stated that there should be no discrimination against any man because of membership or non-membership in a labor union.

It provided for the joint control of hiring halls, and for the distribution of expense for such halls.

It provided for submission to arbitration on the facts, of all existing disputes on hours and basic wages.

It marked an improvement for the men over the April 3rd agreement in that the outright recognition of the I. L. A. at all ports waived the necessity of elections at ports other than San Francisco to determine the representatives; the hiring hall provisions were more clearly defined; and it provided definitely for the submission to arbitration of all existing disputes on hours and basic wages.

The representatives of the I. L. A. agreed to submit the proposal to a referendum vote of the various Pacific Coast locals. It was submitted to a referendum vote at San Francisco and was voted down. It was voted down at the outports by a standing vote, after the briefest possible, in fact any, consideration.

Mr. Ryan, International President of the I. L. A. proceeded to the Northwest where independent negotiations with lines serving northern ports were undertaken. All of these failed, except that a temporary truce agreement was made with several Alaska lines so that those vital services could be restored during the short season of navigation.

● Agreement of June 16

Shortly before the middle of June the Honorable Angelo J. Rossi, Mayor of San Francisco, offered his services as mediator and Mr. Ryan, President of the I. L. A. returned to San Francisco, accompanied by Mr. Dave Beck, President of the Seattle Teamsters' Union, for the purpose of participating in further negotiations.

Meeting in Mayor Rossi's office on June 15th the employers committee

and representatives of the Industrial Association met International I. L. A. President Ryan, accompanied by W. J. Lewis, President, and J. E. Finnegan and A. H. Petersen, members of the Pacific Coast District Council of the I. L. A. and by Michael Casey and John P. McLaughlin, President and Secretary respectively of the Teamsters Union of San Francisco, and Dave Beck, President of the Teamsters Union of Seattle.

The presence of official representatives of the I. L. A., including the International President, was taken by the employers as assurance that they were dealing with the responsible and qualified spokesmen of the longshoremen.

The entire situation was reviewed at length. The evident impossibility of arriving at any terms of settlement which, before acceptance, would require ratification by the Coast membership of the I. L. A. was recognized.

It was finally suggested and then agreed that the International President of the I. L. A. and the President of the Waterfront Employers Union of San Francisco either exercise the authority they held, or secure the authority if necessary, to negotiate and enter into an agreement which would be binding on all their principals at all Pacific Coast ports. All present agreed that such procedure was necessary and desirable and Messrs. Casey, McLaughlin, and Beck volunteered to underwrite and guarantee the performance by the longshoremen of any agreement so reached. Their specific promise as to the means they would use to guarantee observance was that trucking operations would be resumed if the longshoremen refused to return to work should an agreement be reached. International President Ryan of the I. L. A. stated that he could exercise the necessary authority, the President of the Waterfront Employers Union of San Francisco secured the necessary authority, and these two representatives then proceeded to negotiate and on June 16th reached an agreement which was reduced to writing.

This agreement was then brought to Mayor Rossi's office where the persons hereafter named were present. It was read section by section to all present and certain changes were made at the request of certain of the guarantors. The agreement with these changes was then retyped in

the Mayor's office and executed by the principals and the guarantors. The observance of this agreement by the membership of the I. L. A. was guaranteed by:

Michael Casey, President Teamsters Union of San Francisco

John P. McLaughlin, Secretary of Teamsters Union of San Francisco

Dave Beck, President of Teamsters Union of Seattle

Charles A. Reynolds, President's Mediation Board

J. L. Leonard, President's Mediation Board

Angelo J. Rossi, Mayor of San Francisco

and the observance of the agreement by the Waterfront Employers of various Pacific Coast ports was guaranteed by the Industrial Association of San Francisco. Dr. Leonard of the President's Mediation Board stated that he was executing the agreement under specific authority from Washington.

The agreement pointed out the need of responsible leadership and of responsible membership in both groups.

It recognized the I. L. A. as the representative of the longshoremen for the purpose of collective bargaining.

It defined collective bargaining as joint and equal control of employment policies by employers and employees' representatives and joint and equal management of hiring and despatching halls.

It provided for non-discrimination, either in registration or hiring, against any man because of membership or non-membership in a labor union.

It provided for the equal sharing of the expense of the despatching halls between the Waterfront Employers and I. L. A., and provided also for a proper pro rata contribution toward the expense by longshoremen who were registered and who were not members of the I. L. A.

It provided a means for an equitable distribution of the work among all the longshoremen who were to be registered.

It provided for a control in the registration of men, first, to limit the number to the needs of the port, second, to eliminate those who had no just claim on the industry for support thereby preserving the work to the real and regular longshoremen.

It provided for the return of the

men to work on June 18, 1934.

● Repudiation of Agreement

It was understood that it was to be submitted to a referendum vote of the men. A certain element in the ranks of the I. L. A. took immediate and violent exception to it, arranged for mass meetings on Sunday, June 17th, and at the ports of Seattle, Portland, and San Francisco submitted the agreement to a standing vote. It was summarily rejected. At the port of Los Angeles it was submitted to a referendum vote and its acceptance was voted by 638 votes against 584 for rejection. It must be noted that at that port an estimated number of 200 regular longshoremen are presently employed, and these men were unable to cast a ballot.

The men did not return to work on June 18th and the signers of the agreement (excepting the Federal Mediators) met in conference. Mayor Rossi's office the morning of that day.

International I. L. A. President Ryan admitted his helplessness. The officials of the Teamsters Union guarantors of its performance, pleaded their inability to carry out the promise to resume trucking operations because of threats and fears of violence against their members.

● Renewal of Demands

The reason advanced for rejection of the agreement at the ports of Seattle, Portland and San Francisco was that it did not provide for a simultaneous settlement of the various demands of all other striking unions. Some of these unions were of craft not even connected in any way with shipping. Others were unions of seafaring men, but as has been pointed out the Waterfront Employers act without authority or jurisdiction to deal with those unions.

A total of ten striking unions was involved. These unions appointed just how we do not know, a Joint Marine Strike Committee, composed of fifty members, five from each union. H. Bridges was appointed or elected Chairman.

● President's Longshoremen's Board

The President's Longshoremen Board was appointed on June 26, under the provisions of the Joint Resolution approved June 19, 1934.

The above is a brief chronologic account of the incidents leading up to the strike and the negotiations which have taken place in an endeavor to settle it. Three separate agree-

ents approved by the representatives of the I. L. A., one of which was executed by its International President and guaranteed by our Mayor, prominent labor leaders and by Federal Mediators have been repudiated by the men acting, we believe, under the domination of radicals and Communists.

Resulting Physical Conditions

We will now give a brief statement regarding the physical conditions brought about by the strike.

Commencing with the calling of the strike on May 9th, and continuously thereafter, the waterfronts of all Pacific Coast ports have been heavily picketed by longshoremen, sailors and Communists. Shortly after the strike was called, organized mobs took possession of the waterfronts of Portland and Seattle and they have practically been closed ever since. Within a week after the strike had started all sailings to Portland and Seattle were cancelled, and the only water-borne freight reaching those cities has been unloaded at San Francisco or Los Angeles and forwarded by railroad.

Los Angeles has been able to maintain an open port from the beginning, and is now handling more passengers and cargo than ever before in its history.

The picketing at San Francisco has been directed from strike headquarters and there have been hundreds and at times more than a thousand pickets at the waterfront. These men, by violence, threats, and intimidation, have prevented teaming to and from the docks, and have driven the teamsters off the waterfront.

Picketing and Violence

"Wrecking cars" manned by strikers call constantly at the homes of teamship employees and threaten their wives and families, in many instances throwing rocks through the windows, hurling bottles of creosote and painting the premises. Pickets have called on most of the merchants of San Francisco who have freight on the docks or who have cars on their sidings loaded from the docks, and by threats and intimidation have prevented them from unloading cars or sending for their goods at the docks.

These pickets and the striking longshoremen are being supported by relief funds supplied from the public treasury. The cost of such support

from public funds for striking dock workers and their families has been estimated by Relief Director Wollenberg to be \$70,000 per month.

Official San Francisco police reports as of July 9, 1934, show violence in San Francisco as follows:

4 deaths

266 injured, of these 63 per cent were strike-breakers and 10 per cent were police.

40 cases of sabotage.

The paralysis of San Francisco commerce has not been caused by the failure of longshoremen to work or by other peaceful persuasion.

Adequate Longshoremen

Within two days after the strike was called enough men presented themselves for work at current wages to handle the cargo offered. Increasing numbers of men have gone to work at current wages so that for some time more than 1600 longshoremen have been at work. The average number of longshoremen at work in the month of May following the strike, exceeded 1,000. The average number of longshoremen at work in June exceeded 1400.

Local Cargo Penalized

Cargo destined for or coming from points other than San Francisco has been loaded and unloaded readily at the San Francisco docks. 296,898 tons of cargo were loaded and unloaded at San Francisco in May. Figures for June are not now available but they greatly exceed those for May.

The movement of loaded cars by the Belt Line Railroad from the docks has for a long period averaged approximately 3500 per month. The figures of loaded car movement by the Belt Line Railroad from the docks this year, since the strike, have been as follows:

(Strike commenced May 9)

| | |
|----------------------|-----------|
| May 1-15 | Cars 2630 |
| May 15-31 | " 4582 |
| Total | 7212 |
| June 1-15 | Cars 5028 |
| June 15-30 | " 5352 |
| Total for JUNE | 10,380 |

The Harbor facilities of San Francisco owned and operated by the State are unable to serve their purpose in so far as San Francisco cargo is concerned.

Passenger ships for Hawaii, the Orient, Australia and Around-the-World, which made San Francisco their home port, no longer call here, but operate from Los Angeles.

The strikers' control over teaming to and from the docks as a result of their violence and intimidation is such that even the United States cannot take its property from the docks without a permit from a strike headquarters.

Since the strike started no ship can obtain supplies in San Francisco, for a San Francisco merchant cannot send his teams to the docks. Such supplies, formerly obtained here in large quantities, can only be obtained elsewhere.

The Hiring Hall

In 1933, the average number of longshoremen employed at San Francisco was 1300.

The largest number employed on any one day was 2500.

The International Longshoremen's Association claims a membership of over 4000 at San Francisco.

Out of the average of 1300 employed, about 900 have practically steady employment with four or five companies which have regular operations. The balance of men are employed in accordance with the demands of the ships.

It is a convenience to the men and the ships to have a central hall where men can obtain work and ships can obtain men. Such a place is called a hiring hall. At the hall qualified men can be registered, subject to call by telephone when they are needed.

The June 16 agreement signed by International Longshoremen's President Ryan, and guaranteed by the Federal Mediators, Mayor Rossi and prominent labor leaders, provided for a hiring hall, to be jointly operated and managed by a Labor Relations Committee composed of equal numbers of the men and the employers.

It provided that all longshoremen working prior to December 31, 1933, would be registered at the Hall. Additional men would be registered only as required by the needs of the port, under the direction of the Labor Relations Committee.

The employers agreed to hire only those men whose name appeared on the Registration List. But within the limitations of the list the employer was free to select his employees and the employee could select his job.

To spread work, the employers also agreed that the Labor Relations Committee could establish maximum

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..... The Beachcomber's Loot

*Some Marvelous Sea Lore Gathered Where Found,
Without Regard to Authority. Only the Ink
and the Paper were Ours and Those
are Now Yours. Quien Sabe?*



ing something solid and angular at the fetching up point.

● Vanished Crews

For some time past the editor has gathered from many sources rather interesting sea haps. Some of these come from contemporaries, some from personal correspondence, some possibly from imagination. We propose to publish them without credit to any of these sources. We welcome any corrections or discussions and will be glad to publish such but not at space rates. Nix. We can prove ourselves wrong easier than we can dig up five simoleons. Are you credulous or incredulous? Who cares!

Seamen All—Strikebreakers. In July, 1901, the American ship, John A. Briggs, loaded 3100 tons of coal at Tacoma for San Francisco. Labor difficulties were afoot, and seamen were asking \$50.00 for the short run down to San Francisco. After five weeks delay, some of the officers of other ships idle in the harbors of Puget Sound determined to have an excursion and to help Captain Balch of the John A. Briggs at the same time.

Captain A. M. Sewall, master and part owner of the ship Benjamin Sewall; Captain William Gove, master of the tug Wayfarer; Captain J. Barrett, a retired master mariner, and six shipping-business men of Port Townsend all volunteered. Several miners and mechanics, and one British A.B. completed the crew.

The passage down was made in good shape and in the good time of eight days.

Stewing a Reefer. Recently the Royalstar, a twin screw 7910 gross ton, refrigerated, cargo-carrying steamer of the Blue Star Line was found to have a considerable quantity of congealed fuel oil accumulated in her double bottoms. On consultation with a ship repair firm, she was put into a graving dock just large enough for the ship. This dock was flooded enough to cover the ship's bottom. Steam pipes were laid and the temperature of the water gradually raised to boiling point. Get the picture—a fish 450 feet long, being boiled in a kettle 460 feet by 70 feet. Reports are that the experiment worked perfectly and the double bottoms were cleaned thoroughly at a satisfactory cost.



● How to Keep From Growing Old

Fix a hatch board in a space it won't fit, then jump on it to try to make it fit. This is particularly efficacious if it happens to be a weather deck hatch, the hold is empty and the 'tween deck hatches removed.

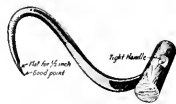
Take a stick of dunnage (preferably one with a knot in it) lay it across the hand rails of the upper grating of the engine room and stand on it in an attempt to reach something out of reach. This is really good because of the chance of strik-

ing something solid and angular at the fetching up point.

Of all the mysteries connected with sea-faring, the most intriguing of those which gather round the appearance of entire crews from ships that are left in good condition. The most celebrated of these mysteries is that connected with the Portuguese brigantine Marie Celeste. On December 5, 1872, this vessel was sighted by a British barque. The Marie Celeste was under full sail but her movements indicated that the one was at the wheel. The British captain hailed her and, receiving no reply, boarded. He found not a sail aboard, but everything in shipshape order. In the captain's cabin an unfinished meal for four was on the table. A child—one of the four—had almost finished a plate of porridge. An unfinished garment was in the sewing machine. The cash box was intact. No evidence of any struggle, or even of hasty exit was found. The ship's boat was in place.

To this day, every year brings it some new solution of this mysteriously in the shape of a posthumous explanation from a "sole survivor." None so far will stand strict analysis, and Marie Celeste still maintains her championship in the unexplainable and inscrutable class of sea mysteries.

In older days the sailors of Northern Europe conceived of many ships that sailed the ocean, manned by ghostly crews. There was, for instance, the Flying Dutchman, that haunted certain parts of the ocean round Cape of Good Hope; or the ship of Beowulf in Norse mythology. Is it not very possible that vessels whose crews had disappeared in a mysterious fashion might have drifted for years, up and down at sea,



appearing occasionally to the then frequent ships of commerce, and give rise to these tales?

In 1901 there came into Tebo Yatchasin, Brooklyn, New York, the good ship Commodore—without a crew. No one of the crew has yet been found. Recently the steamer Louis I entered the port of Almira, Spain, towing the fishing smack, San Antonio, which had been found five miles out, with all sails set—and no crew.

Vanished Ships

More easily understood, but not always readily explainable, are the mysteries connected with the complete vanishing of both crew and ship. Many real sailor folk consider this type of disappearance—especially on a sailing ship—as the desirable end of a busy life. To them, it is like the Western pioneer's ambition to die "with his boots on." Hence, we have that beautiful prayer put into verse by Masefield, in which a great aviator when all his work is done asks that he—

"May pass in the night at sea, at night of storm and thunder,
Mid the loud shrieking of the wind,
through rope and sail and spar;
Send me a ninth great peaceful wave

To drown and roll me under
To the cold tunny fishes' home,
where the sunken galleons are.
And there in the dim green quiet depths, far off from sound and hearing;

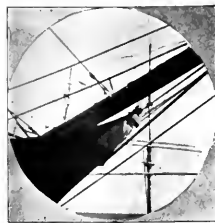
Grant that I may sense at times the swish of the sea foam
About the bows of the stately clippers steering
For the far northern lights and the fair ports of home."

Those of us whose memories run back to the last quarter of the nineteenth century will remember that old song whose refrain ended with the sad lines—

"And for years and years there were sad hearts waiting

For the ship that never returned."
In sailing ship days, many vessels would be posted as missing, and after years of suspense the ship herself, or some members of her crew, would return to tell the story. Today such mysteries are minimized by the widespread use of radio and telegraphic communication. But even the very recent past has enough of such disappearances.

During the winter of 1917-1918, the



U. S. Navy fuel carrier, Cyclops, disappeared in the Atlantic, leaving no trace of wreckage, and taking her entire crew along. She was equipped with radio, and with very complete emergency life saving apparatus.

In 1929 the Danish training ship, Kobenhavn, a practically new five masted barque, with a steel hull, equipped with a 600 horsepower auxiliary diesel engine, and with powerful wireless, disappeared in the South Pacific. She was on a world girdling cruise with some 120 Danish cadets. No trace of her has been found except a few bits of wreckage which might have belonged to some of her equipment.

Twenty-three Knots Under Sail. In 1865 the clipper ship, Blue Jacket, made a passage from Lyttleton, New Zealand, to East India Docks, London, in 63 days. Running her easting down before a half gale, she averaged 20 knots speed for several days. She was equipped with a new patent log and at times this instrument momen-

tarily indicated 23 knots speed. From off Lyttleton, until they "hailed up" norward beyond the Cape" her average was 384 nautical miles per day.

Blue Jacket was built by Robert E. Jackson at East Boston and launched August 27, 1854. Her first voyage was Boston to Liverpool, where she was sold to British interests and put into the Australia run. Dimensions were: 235 feet overall length of hull; 41.2 feet beam; 22 feet loaded draft; 1709 registered tons, old measurement. She was burned at sea off the Falklands in 1869. Crew escaped in boats and were rescued by Bark Pyrmont after much hardship.

Hurricane and Sharks. On October 8, 1887, the American ship, Alfred Watts, cleared Philadelphia for Japan, loaded with 71,000 cases of kerosene. Seven days out she encountered a hurricane, and was soon laboring very heavily. Finally she became unmanageable, and went on her beam ends. All the ships company, 26 in the crew and one passenger, were swept overboard and all but five drowned. These five (four seamen and the passenger) clung to a piece of the forward house that had been carried away and was floating not far from the wreck.

Next day the passenger became delirious, and jumping into the sea, was drowned. A little later two of the seamen attempted to swim over to the wreck and were pulled down by sharks.

The two survivors, desperately sculling with a plank, managed to get their support alongside the fore-castle of the wreck and clambered aboard. The wreck by this time had cleared herself of most of the top hamper, and was floating nearly upright with fore-castle and poop awash and decks submerged.

Under the fore-castle, the two seamen found a couple of tight wooden tanks, filled with fresh water. The working of the hull floated out some salt pork and codfish from the store-rooms. These two men subsisted in this way for 30 days, when the wreck was finally sighted and they were taken off by the bark, Lizzie Perry, bound for the West Indies. She also was wrecked before reaching her destination, but all hands were saved, and on February 3, 1888, the two survivors of the Alfred Watts arrived back in Philadelphia as part of the crew of the brig Mary Bartlett.





Marine Equipment

An Unusual

Seatrain Shipment

The two ocean-going car-carrying vessels of the Seatrain Lines, Seatrain New York and Seatrain Havana were placed in service in 1932 and since then each has made about forty-two round trips between New York, Havana and New Orleans. Each round trip is about 4,000 nautical miles so that each of the vessels has now logged about 168,000 nautical miles. When the vessels first went into service it was thought that they were among the most efficient cargo carriers afloat even though they were of unusual lines to permit maximum cargo of loaded freight cars. The efficiency is still being maintained although the vessels make weekly sailings from New York which allow very little time in any port for repairs, adjustments or alterations.

The Seatrain New York and Seatrain Havana are equipped with DeLaval 8,800 horsepower turbines which exhaust to Foster Wheeler surface condensers of the latest design. Each condenser contains 6,500 square feet of effective surface arranged for single pass water flow but with divided water boxes for maximum flexibility. The tubes of the condensers are expanded into both tube sheets thus protecting the boilers from contaminated feed wa-

ter by eliminating condenser leakage.

On a recent trip the Seatrain Havana placed aboard the longest single shipment handled by any of the Seatrain boats. This shipment was a Foster Wheeler fractionating tower mounted on a single flat car but overhanging at either end so that idler cars were required during railroad transit. When the loaded car was placed on the boat, however, the idlers were left behind. The nozzle on top of the fractionating column had to be left off in order to permit clearance in the elevators during loading and unloading of the car.

During the trip to Havana on which this car was carried the 1,176 nautical miles were covered in 92½ hours—an average speed of 14.7 knots.

[Heat Engineering]

New Lead Alloy with Many Valuable Features

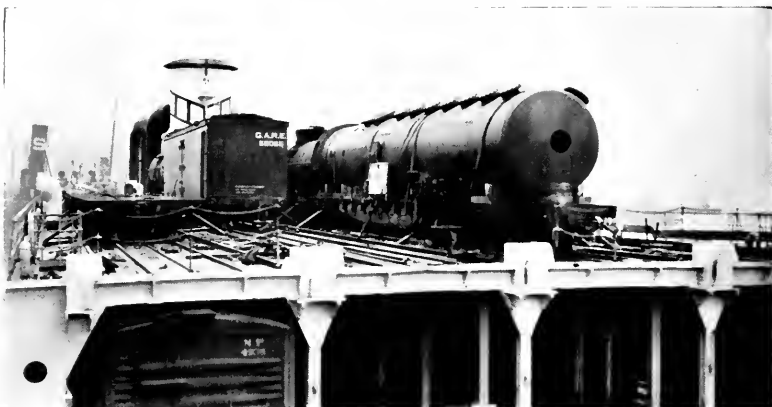
A new type of lead with greatly superior qualities has been developed in Great Britain and recently introduced into the United States by the National Lead Company. This product is known as Tellurium Lead, and its unique properties are obtained by adding to pure lead, less than 0.1 per cent of tellurium. Laboratory and practical tests have shown that it is superior to ordinary lead in resistance to corrosion, in ten-

sile strength, in resistance to fatigue failure, and in workability. In obtaining superiority in these points there is no sacrifice in any other desirable quality of ordinary lead.

Tellurium Lead has a fine granular structure, with a total absence of coarse crystalline formations that characterize commercially pure lead, and undoubtedly its unusual properties are due to this fineness of grain. This new alloy has a remarkable ability to toughen when put under strain. Work hardened by rolling or stretching, it is greater tensile strength and resistance to fracture than before being so treated. This is illustrated by the following tests:

To toughen it, a piece of Tellurium Lead pipe was stretched in a tensile testing machine to the point where an ordinary lead pipe would have fractured. The pipe so stretched was then submitted to a hydrostatic test and it was found that the hydraulic pressure required to burst the Tellurium Lead pipe after pulling out, compared with that required to burst it before pulling out, was in the ratio 175:100. In other words, although the Tellurium Lead pipe had been considerably stretched and the wall thickness reduced, its resistance to hydraulic bursting had been increased by 75 per cent.

This ability to develop latent strength was also illustrated in a series of tests in which strips of Tellurium Lead ad-



This Foster Wheeler fractionating tower was too long to pass through the hatchway into the hold and therefore the car carrying it was placed upon one of the four tracks on the upper deck of the sea train Havana.

rdinary lead were placed in a tensile machine and overstrained 12½ per cent. The strips were then tested at various periods up to six months. Results were as follows:

| | Ordinary Lead | Tellurium Lead |
|--------------------|---------------|----------------|
| before Straining | | |
| As received | 2530 | 2960 |
| after Straining | | |
| 3 min. after | 2800 | 3350 |
| 1 hour " | 2340 | 3330 |
| 7 days " | 2240 | 3400 |
| 6 mos. " | 2225 | 3550 |

The ordinary lead showed a temporary increase in strength three minutes after over-strain, but the strength then began to drop and was 12 per cent less after six months. The Tellurium Lead showed a considerable increase in strength three minutes after over-strain. This increase continued and after six months reached a strength 21 per cent greater than the original strength.

The advantages of a material which has strengthened under strain are perfectly obvious. Tellurium Lead pipe, for example, exhibits greater resistance to bursting after repeated freezings and a longer life under conditions where vibration stresses are encountered — on shipboard, in viaducts, cables and domestic supply pipes and also in the case of chemical apparatus where vibration is present. In sheet form, especially in the lining of acid chambers, vats and tanks, there should be a reduced tendency to sag, buckle and crawl with a greatly diminished possibility of fracture after prolonged service.

A number of tests have been made to determine the resistance of Tellurium Lead to sulphuric acid. 97 per cent sulphuric acid at 300 degrees Centigrade, which completely dissolved chemical lead in one hour and nickel lead in two hours, caused a weight loss of only 11.52 per cent in Tellurium Lead in two hours. For a short period this product was even able to withstand boiling sulphuric acid. Other sulphuric acid tests, at several different temperatures, indicate that Tellurium Lead has a much increased flash point—and that it far exceeds ordinary lead in resistance to sulphuric acid corrosion.

Actual exposure tests were also carried out in the Glover Tower Cooler of a sulphuric acid works. Under these conditions, Tellurium Lead showed seven times greater resistance to corrosion than chemical lead.

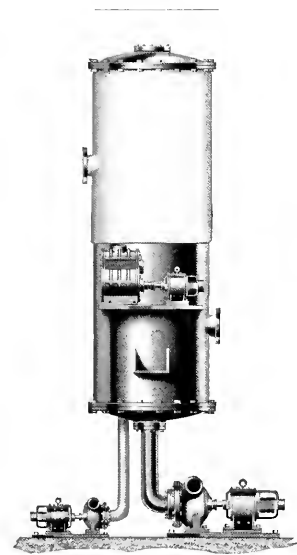
In other tests with phosphoric acid, chlorine gas, impure solution of sodium sulphide and sulphur dioxide, Tellurium Lead has proved itself superior to chemical lead. Tellurium Lead sheets may therefore be recommended for sulphuric acid plant equipment, storage tanks and chemical plants generally.

It is important to remember, furthermore, that superior acid resistance and a greater tensile strength which increases with strain are not accompanied

by any loss in working qualities of the metal. Although work-toughened Tellurium Lead is harder than other lead, the tensile test proves conclusively that this hardness is not accompanied by brittleness. A Tellurium Lead sheet can be bent many times and hammered at the bend without fracture. Moreover a Tellurium Lead pipe can be bent repeatedly with no sign of cracking. Users of Tellurium Lead testify to the fact that the working qualities of Tellurium Lead are superior to those of ordinary lead.

Finally, the fine grain structure of Tellurium Lead gives the metal a smooth surface which does not roughen greatly when bent. The ability of Tellurium Lead to retain its smoothness is at once apparent. This quality is important. It means that the interior walls of Tellurium Lead pipe will remain smooth even after considerable working. Friction losses will thus be lessened and furring retarded. Furthermore, the naturally smooth surface of Tellurium Lead sheet lessens the possibility of pitting and local corrosion.

As noted above, Tellurium Lead is now being manufactured and sold in this country by National Lead Company. It is obtainable in pipe or sheet form. The latter is available in either a soft or a work-toughened condition.



Elliott exhaust steam water cooler.

Water Cooled by Exhaust Steam

The Elliott Steam Operated Cooler produces cooled water by means of

flash or instantaneous evaporation under vacuum.

This steam cooler is fully contained within a single tank and is compact in size, being two feet in diameter and approximately six feet in height.

Within the tank is a low pressure evaporating compartment, a compressor of the steam jet type and a condenser. The exterior of the tank has one pump for removing and circulating the cooled water and another pump whose function is to remove the condensing water from the condensing compartment. An auxiliary motor driven vacuum pump is mounted on the side of the unit for the purpose of maintaining a moderately reduced pressure in the condensing compartment.

The entire cooling unit can be installed in a space less than three feet square and eight feet high. Top half of the unit is insulated to avoid absorption loss of heat by the chilled water.

Low pressure steam, at any available pressure above atmospheric is admitted to the tank through an opening at the top. Water, to be cooled, is continuously admitted through the upper opening at the side of the tank, into the low pressure compartment, where the pressure is maintained at three-tenths of an inch of mercury. The entering water adjusts itself to the corresponding temperature of 45 degrees which is boiling point at that pressure. This change in water temperature is the result of evaporation under vacuum. Vacuum is created in this equipment by a steam jet ejector or "booster", through which steam issues from nozzles at velocities of 3500 to 4500 feet a second; draws in vapors from the water entering the vacuum tank, by aspiration, and ejects the mixture into a condenser. The motor driven vacuum pump is connected to the condensing compartment for the purpose of removing the condensate and maintaining a moderately reduced pressure, and to reduce the duty imposed upon the steam jet compressor. After the water has been cooled, it is withdrawn from this compartment by a pump and circulated to where it is to be used, then re-circulated to the steam operated cooler for re-cooling. Make-up water is added as needed.

Condensing water is admitted to the condensing compartment through the lower opening on the side of the tank and circulated through this compartment by a pump.

Operating on waste steam at three pounds per square inch, this equipment will produce fifteen tons of refrigeration a day at a cost which will compare favorably with any other method.

The popularity of vacuum refrigeration is due primarily to the advantage of direct evaporation without a chemical; to simplicity of design and operation; and to low upkeep cost.

Elliott Steam Operated Coolers of the unit type, as illustrated, are built in three capacities up to fifteen tons by the Elliott Company of Pittsburgh, Pa.

First Arc Welded Cargo Vessel

Plying the Great Lakes in the middle of her first season, is the most unusual ship in years, the all-welded steel freighter, Dolomite, of Rochester.

The ship is semi-submersible, diesel engine propelled, 214 feet long, 1700 tons, and built for Great Lakes, barge canal and coastwise service. It is owned by the Dolomite Products Company and was built under the personal direction of John H. Odenbach.

The hull is built of 12-inch steel channels formed in U shapes and is arc-welded throughout. There is not a rivet in the ship. Proof of the strength and stability of the ship came in an unusual test the early part of February. At Albany on the Hudson River when the vessel was blocked by 14 inches of ice, she charged the ice jam and then backed up about 400 yards and headed into the ice again at full speed. By repeating these tactics, the vessel was able to break through approximately 40 yards of ice at a time. Although it was necessary to hit the ice with a terrific impact, no damage whatsoever was done to the hull. So thick was the ice that 3½ days were required to travel approximately five miles. Early this spring while traveling at six miles per hour the Dolomite hit a submerged wall without even denting the prow.

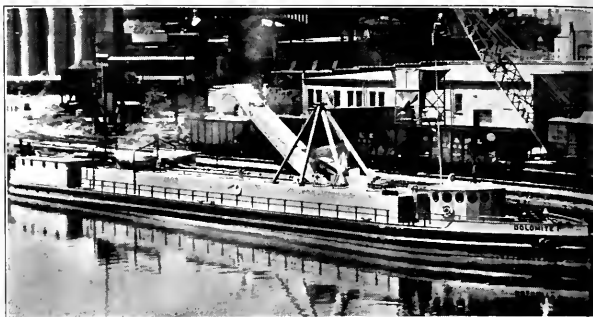
The ship is of the semi-submersible type, permitting increase in draft when entering the barge canal and thus facilitating its passage under low bridges.

One of the unusual features of the ship is that she can be converted into a tanker within three hours and can take on 300,000 gallons of gasoline, fuel oil or other liquids. She has fourteen self-cleaning hoppers of approximately 100 tons capacity each, with seven on each side in midship section, all air tight and equipped for loading and unloading with dry or liquid cargo. The boat is self-unloading.

The Dolomite recently unloaded its thirteenth cargo, sulphur, at Cleveland from where it was scheduled to clear for Detroit, then Philadelphia where it will probably go direct to Galveston, Texas, for a cargo of gasoline.

Believed to be the first arc welded freighter ever built, the career of the Dolomite is being watched critically by marine architects and shipowners. The construction, using channels transverse to the hull arc welded together, is different from anything ever attempted. Service to date has been satisfactory even beyond the expectation of the builders.

The ship was designed and built by The Dolomite Marine Corporation, Rochester, New York. She was not built in a shipyard. Practically no tools were used other than a crane, an electric winch, an air compressor, cutting apparatus and seven arc welding machines. The channels were bent cold



M.S. Dolomite, first arc welded cargo ship.

with homemade equipment. All welding was done by the shielded arc process using equipment manufactured by The Lincoln Electric Company, Cleveland, Ohio.

Scale Accumulations of Diesel Engines

By E. A. HURST

President, Artie Chemical & Combustion Engineering Corporation

Several discussions of recent date centered around scale formation in the water circulating systems of internal combustion engines ranging from the largest Diesel engines in passenger and freight steamers to the small gasoline engines in pleasure craft. Over a period of years, several different samples of scale have been examined with some definite and interesting laboratory tests. Scale structures have varied from a light carbonate to a heavy calcium sulphate. Research and investigation have definitely proved that more than 70 per cent of the cases of failure, due to cracked heads, liners and exhaust valves, are traceable to scale formation on the cooling surface with complete clogging up of the small apertures in the circulating system.

● Fresh Water

Further investigation revealed an even more serious condition where there was no scale in engines from 40 to 5,000 shaft horsepower where fresh water was used as a means of cooling. The fresh water circulating system, while it is to be commended, has several very definite objections. The first being the amount of space required for the sump tank; the second, the source of supply of cooling water for the system, the method of cooling, particularly water taken from various parts of the world, which contained dif-

ferent grades of impurities. In some cases the water was found to be hard, around 23 grains, while in other cases, the water was found to be highly alkaline, having a value of 11.6 Ph (Hydrogen Ion). The former with the high hardness, contained on analysis, a high calcium bicarbonate, while the latter, (alkaline water), contained a high percentage of vegetable matter. These vegetable waters when heated to around 150 degrees to 200 degrees Fahrenheit threw off carbonic acid CO₂, which is highly corrosive. Examination of several units showed that this gas had started to cause excessive pitting and created a sponge like condition on the cast iron liners and heads. This sponge like condition was removed with a ship instrument such as a scraper and it was found underneath that the metal had turned absolutely black and showed signs of acid corrosion.

The fresh water in the systems of various ships was analyzed using a Ph control system and was found to be decidedly acid, and hence, corrosive. In several cases under observation, cylinder walls on the water side deteriorated as much as .030 inch in four months' operation. Various formulae have been in use for offsetting the acidity of fresh water, in most cases using sodium carbonate, sodium hydroxide or potassium. While these chemicals maintained the water in the system in a high state of alkalinity, they deposited themselves on the cylinder heads and formed a hard insulating scale. This was especially noticed in systems using trisodium phosphate. Such deposits are, of course, due in a great measure to the inaccurate measurements of the amount of chemicals.

There are several cases on record where small passages were clogged up due to various chemicals used to keep the water alkaline. Several cases have come to light where water jacketed exhaust pipes have clogged so much that it became impossible to even get circulating water from the engine to the overboard discharge. Where a small percentage of the water got through the system, there was no p-

reciable difference in the water temperatures from the sump tank to the discharge proving conclusively, that the cooling water was not absorbing any heat from the engine.

Several chemical formulae were made and supplied to various ships with definite instructions as to dosage for control purposes. Samples of the water were taken from the ships as they arrived in port and a close check was kept on alkalinities and percentages by volume of gas, CO_2 . This system has been in operation for about two years, during which time all scale, rust and corrosion have been entirely removed from the engine to the sump tank. After the sump tank had been cleaned, there was no further evidence of scale or rust formation in the system. These formulae naturally vary with the type of engine, heat transference and probable water supply. Also consideration was given to the changes of water and changes of temperature. The Ph control system was used throughout whereby a standard alkalinity was maintained. On examination of the internal parts of the cooling system, clean gray iron was in evidence with a light protective film on all parts exposed to the water circulation.

● Salt Water Circulation

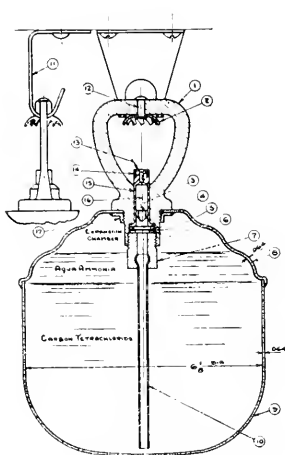
Various tests were made on systems using salt water circulation. It was found that this type of circulation presented the hardest problem, not only because the low suction pick up large amounts of mud (aluminum silicate) in port, but also because the usual salts in sea water gave large deposits of calcium sulphate caused by the baking and intense heat especially in the heads and exhaust valves. Various tests were made to try to dissolve this rock like substance, which has a very high insulating power; one sixteenth of scale being equivalent to approximately one inch of magnesium. Several alkalies were tried, using sodium hydroxide 70 per cent concentrate. This acted very slowly at temperatures from 150 to 210 degrees Fahrenheit. It took from 24 to 72 hours to dissolve part of this scale using such alkalies.

Further tests were made using a combination of hydrochloric and nitric acid. This combination of acids attack the calcium carbonates, and parts of the calcium sulphate structure disintegrating it sufficiently that it sponged and broke the structure down. This was then washed from the circulating system. Due to the highly corrosive action of these acids, it was necessary to place inhibitors in the chemical compound to prevent attacking either the ferrous or non ferrous metals that form part of diesel engines. The resultant combination has been tried out over a period of three years on passenger ships and some of the largest diesel engine tankers. The outstanding feature of the use of this combination is, that the work is done cold and is performed in a few hours, so that it does not delay the ship or interfere with the port operation. Calibrations of various parts of the engine after using this cleaning combina-

tion for a period of three years, have definitely proved that there was no corroding of the metal, fatiguing or general deterioration. No inter crystalline cracks were observed under microscopic tests of the metal.

The same tests were conducted for scale accumulation in gasoline engines and all types of land and marine engines, using salt or fresh water as a medium for circulation.

In all cases where this scale removal process is undertaken, a sample of the scale taken from the engine is thoroughly analyzed at our laboratories. At this time it is definitely decided whether or not the formation can be broken up. Cases have come to light where it was necessary with a calcium sulphate structure, to completely saturate the system with CO_2 gas to increase the carbonates, after which the acid combination was used dissolving the carbonates, impregnating the structure, and softening the same so that it could be easily washed out.



Inboard profile Firetox automatic chemical sprinkler unit.

Self-Contained Automatic Sprinkler System

What virtually amounts to an automatic fireman constantly on the job, ready to go into action when fire breaks out and mastering that fire before substantial damage can be inflicted yet entirely free from usual water or chemical damage, is now available for use aboard ship or on dock. Known as the Firetox System, it represents some fifteen years of development by Prof. Howard W. Doughty of the Department of Chemistry, Amherst College.

The new system comprises one or more self-contained automatic chemical sprinkler units suspended from ceiling



A Firetox unit.

or beams above the area to be protected. Each unit consists of a container for the chemicals, and an automatic sprinkler head. The contents are hermetically sealed by means of a solid diaphragm which ruptures when the sprinkler head is released. The chemicals, under pressure due to the heat of the fire, are forced out, striking the spreader and breaking up into a fine mist or fog. Weighing five times more than air, this fog settles down on the fire below, smothering the flames in a few minutes' time. It even penetrates between decks or floors, reaching down through cracks and openings to flames and embers otherwise inaccessible.

Because each unit is self-contained, there is no piping, water supply or other complication entailed. Units are simply suspended on special hangers. There is no freezing to contend with. No maintenance of any kind. The first cost, which is also the last, is moderate.

Already widely installed in factories, offices, apartment houses, private dwellings, schools, hospitals and other buildings, the Firetox System lends itself to marine use. The present design is satisfactory for pleasure craft and small boats. Also for the safeguarding of docks and piers, particularly where merchandise might be damaged by water or chemicals quite as well as fire. The number of units required, their placement, and the confinement of air if necessary for satisfactory operation, are determined by the engineering staff of Firetox System, Inc., Attleboro, Mass., manufacturers of the equipment.

Ideal Seal Has Many Uses

A handy compound that will act as a lubricant on screw threads, prevent rust, and preserve a perfect seal against leaks of liquids or gas under pressure, should certainly find a wide use on shipboard, on piers, and in shipyards.



The Ideal Perfect Seal, manufactured by the Ideal Comutator Dresser Company of Sycamore, Illinois, claims to have all these features and more.

It spreads in layers as thin as 0.001 inch, and will true flange joints perfectly without a gasket. It makes a wonderful lubricant for parking universal joints. It preserves belts, greatly prolongs their life, and prevents ship-page and jumping off.

Ideal Perfect Seal is not affected by ordinary temperature or atmospheric conditions, and resists all common acids. It "seals but never hardens".

This product is packaged in three- and eight-ounce tubes, four-pound pails, and 45- and 135-pound drums.

Marine Electrolysis

Eliminated

Expansion of sales of Marine Electrolysis Eliminators, made in Seattle by the Marine Electrolysis Eliminator Corporation, prove that this troublesome problem of ship operators can be definitely cured. During the past few months installations have been made on vessels of the Puget Sound Navigation Co.; Luckenbach Line, Northland Transportation Co. and the Coast Guard. Latest is the installation made on the Andrea Luckenbach, the test results of which will be made public soon. Sets have been fitted on the wooden motorship Norco of the Northland Line, and on the steel Coast Guard cutter Chelan, with equally successful results. Over 100 are installed on Pacific Coast fishing craft—the Sebastian Stuart Fish Co. of Seattle having five vessels of their fleet equipped, and the San Juan Fishing and Packing Co. have three ships of their fleet so equipped, including the S.S. Starr of their Alaska service. The U. S. Bureau of Fisheries already has six of their fleet while another Government branch has the Mine Tender Bell equipped for protecting the

propeller and specifications are now finished to protect the entire hull. The big Diesel yacht Victoria Mary belonging to George W. Codrington is likewise wired for eliminators.

An interesting letter from E. G. Davidson, Captain of the fireboat City of Galveston, equipped with six eliminators, has just been released by Arley Cheadle, President of the Marine Electrolysis Eliminator Corp., which we reprint below:

"June 4, 1933 Fire Boat was Dry Docked and Six Electrolysis Eliminators were installed on hull of vessel, placing three on each port and starboard side, forward midship and aft. Representatives of the American Bureau made a careful survey of pitting in hull below water."

"April 15, 1934 Fire Boat was Dry Docked and conditions found were only small barnacles and growth of grass, no oysters, pitting ceased, the eliminators were the only metal attacked. The Fire Boat could be judged a crucial test as vessel is moored near a sewer outlet, which gasses and acids play havoc with hull. However we feel that the eliminators installed have performed their duties."

Very truly yours,

E. G. DAVIDSON,
Captain of Fire Boat.
A. H. BOCKELMAN,
Chief of Galveston Fire Dept.

Galveston, Texas,
April 30, 1934.

Trade Literature

Fabricating Stainless Clad Steel. — The first comprehensive guide to the fabrication of stainless clad steel has just been issued by the Ingersoll Steel and Disc Company, Chicago (division of the Borg-Warner Corp.). This 16-page booklet is entitled "Manual of Welding and Fabricating Procedures for Ingaclad Stainless Clad Steel" and takes up, step by step, the various methods of welding, soldering, lock steaming, riveting, deep drawing, pickling, heat treating, etc., encountered in fabricating products of stainless clad steel. The Manual contains many diagrams to guide the fabricator in working with the material.

A distinctive feature of the Manual is an illustrated section showing actual installations and applications of Ingaclad in a wide range of industries. These include the food, soap, chemical, paper, brewing, dairy, building, and other industries that have used the material and subjected it to all of the procedures described in the Manual.

Other sections of this attractively prepared booklet are devoted to a description of the method of producing Ingaclad by the original welded-in-the-ingot process and to the physical properties of the clad material.

A Better Portable Compressor. Bulletin No. 2100 of decidedly original design and make-up, has recently been issued by Ingersoll-Rand. It sets forth in

a novel and interesting manner the many advantages of the company Two-Stage, Air-Cooled Portable Compressor.

This unit is built in five sizes, ranging from 75 to 370 cfm. piston displacement. It is supplied in a large variety of mountings—from a steel-wheel mounting, with a towing speed of 1 mph., to the two-wheel trailer mounting, which can be towed by a truck 35 mph.

Both the oil-engine- and the gasoline engine-driven units are shown in the new bulletin, which gives details as to the amounts of fuel savings that can be expected from two-stage operation, the use of an air-cooled intercooler, and from certain design features to which attention is called.

Copies of the new bulletin may be obtained from Pacific Marine Review from Ingersoll-Rand Company, Broadway, New York City.

Freights, Charters, Sales

July 16, 1934
So far as United States ports are concerned, with the exception of the bulk traders, chartering is at a complete standstill.

The strike of the stevedores and seamen has been at a deadlock and in San Francisco there is a general strike of all unions. Under these circumstances, it is an impossibility to quote rates with any degree of accuracy.

British Columbia is unaffected at the usual berth business is being done but with distress space offered freely.

Several ships which have been lying in the Columbia River due to the strike have been shifted to British Columbia to load.

Tankers: A number of fixtures are reported in the California Far East trades at rates ranging from 10/3 to 11/3, and business has been done for Montevideo for three consecutive voyages at undisclosed rates.

PAGE BROTHERS,
Brokers





American Shipbuilding

NEW BIDS CALLED ON LIGHTSHIP JOB

Bids were called on July 12 by the 8th Lighthouse District at San Francisco, California, for the conversion of the Lightship No. 83 from a coal burner to an oil burner, installation of boilers, and other changes, work to be completed in 120 days. Bidders were urged to visit the Lightship at Yerba Buena Lighthouse Depot in San Francisco Bay to ascertain for themselves the work to be performed and the conditions and hazards involved. A deposit of \$10.00 will be required for plans and specifications. This deposit will be refunded upon return of plans. Checks for deposit should be drawn in favor of "Superintendent of Lighthouses." Bids will be opened at 2:00 p.m. on August 7.

STANDARD SHIP DESIGNS

DRAWN UP BY SHIPPING BOARD

According to report the construction division of the United States Shipping Board Bureau, Department of Commerce, Washington, D.C., is now engaged in the drawing up of standard designs for several types of commercial vessels. Details of their work is not available for publication, but it is understood that the designs will include a standard freighter, a standard refrigerated cargo ship, and two types and sizes of oil tankers. Although no information as to the purpose of these plans has been issued, it is possible that they will figure as a check against future designs submitted for construction loans, for aid in preparing subsidy legislation, and for consideration by shipping companies interested in the future in building vessels of these types.

DECISION EXPECTED SOON ON FISHING BOATS CONTRACT

It is expected that a decision will be reached shortly, and contract placed, by the Equator Tuna Fishing Corpora-

tion, Los Angeles, California, for the two steel, twin-screw tuna fishing vessels, bids for which were opened at the offices of the Shipping Board at Washington, D.C. on June 14. The three yards offering the most attractive bids were the Federal Shipbuilding and Dry Dock Company, Kearny, N.J.; Newport News Shipbuilding and Dry Dock Company, Newport News, Va.; and the Sun Shipbuilding and Dry Dock Company, Chester, Pa. The vessels in question were designed by Theodore E. Ferris, naval architect, 30 Church Street, New York. They will be 175 feet in length, insulated throughout, equipped with complete refrigeration machinery, and driven by two Diesel engines. They will be built under Shipping Board loan up to seventy-five per cent of the cost.

A NICE MACHINERY ORDER

The marine division of the transportation department of the Westinghouse Electrical and Manufacturing Company are busy manufacturing and assembling propulsion machinery for seven coast guard cutters now building at United States Navy Yards.

The vessels are twin screw, and each ship has 6200 shaft horsepower provided by two sets of cross compound double reduction gear turbines. The Westinghouse order therefore includes:

- 14 cross compound Westinghouse-Parsons turbines;
- 14 double reduction gear sets with thrust bearings;
- 14 condensers with 3000 square feet cooling surface;
- 14 turbine driven circulating pumps;
- 14 turbine-motor-driven condensate pumps;

- 14 banks of air ejectors with inter and after condensers;
- 14 lubricating oil coolers; and
- 14 lubricating oil strainers.

This order totals \$1,750,000.00. These seven Coast Guard Cutters are distributed on the Atlantic Coast as follows:

- 4 at Philadelphia Navy Yard,
- 2 at Brooklyn Navy Yard, and
- 1 at Charleston Navy Yard.

NEW BIDS CALLED FOR TENDER RHODODENDRON

Bids were expected to be opened on July 23, by R. R. Tinkham, Superintendent of Lighthouses, Portland, Oregon, for the construction of the 80-foot steel lighthouse tender, Rhododendron.

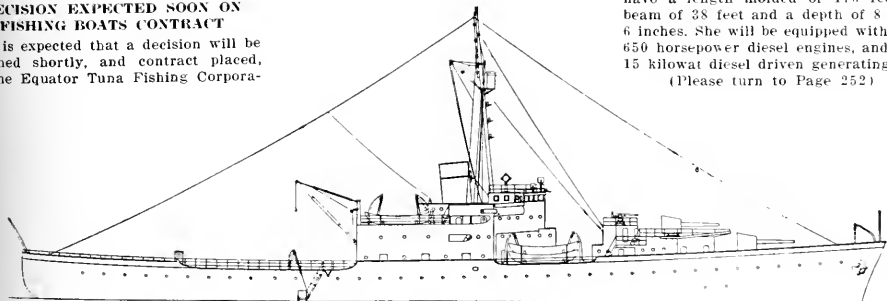
The new vessel, of steel construction throughout, will be Diesel powered, 80 feet in length and 19 feet in beam.

The Rhododendron is to be powered with twin full-Diesel engines, six-cylinder of 120 horsepower, to give the vessel a speed of 11 nautical miles per hour. Equipment will include one 10 k. w. full Diesel-driven direct current electric generating set, electrically driven handling gear consisting of a triple-drum hoisting winch with two gypsy heads, and a fire deck and bilge pump, also electric-driven. The contract will allow 120 days for completion.

MARIETTA TO BUILD DIESEL TOWBOAT

Contract has been awarded to the Marietta Manufacturing Company, Point Pleasant, West Virginia, for the construction of one twin screw diesel driven towboat for the U. S. Engineer's office at Vicksburg, Miss. The craft will have a length molded of 176 feet, a beam of 38 feet and a depth of 8 feet, 6 inches. She will be equipped with two 650 horsepower diesel engines, and one 15 kilowatt diesel driven generating set.

(Please turn to Page 252)



Outboard profile of the 328-foot cutters, seven of which are now building at United States Navy Yards.

Progress of Construction

The following Report Covers the Shipbuilding Work in Progress at the Leading Shipyards of the United States as of July 1, 1934

Pacific Coast

BETHLEHEM SHIPBUILDING CORPORATION, LTD.

(Union Plant)
San Francisco

DRYDOCK, PAINT, MISCELLANEOUS: Tug F. A. Douty; M. S. Jutlandia; U.S.A.T. St. Mihiel; Stern Whl. Stmr. Gold; S.S. Hegira; Tug Gov. Irwin; State Dredge No. 3; Tug A. G. Wells; M. S. Lio; S. S. Frank G. Drum.

GENERAL ENGINEERING AND DRYDOCK CO.

Foot of Fifth Avenue
Oakland, Calif.

DRYDOCK, PAINT, MISCELLANEOUS: Barge Evans; S.S. Issaquah; S.S. Ryder Hanley; Tug Samson; Ferry City of Seattle; S.S. R. M. Woodward; Lightship No. 100; Barge Santa Fe No. 3; Yacht Hermit.

LAKE UNION DRYDOCK & MACHINE WORKS

Seattle, Wash.

NEW CONSTRUCTION: Hull No. 102, Atlanta, U.S. Coast Guard patrol boat; keel laid March 23, 1934; launched June 11, 1934; estimated delivery, Sept. 20, 1934.

Hull No. 103, Ariadne, U.S. Coast Guard patrol boat; keel laid March 23, 1934; launched July 1, 1934; estimated delivery, October, 1934.

Hull No. 104, Cyane, U.S. Coast Guard patrol boat; keel laid June 12, 1934; estimated launching August 1, 1934; estimated delivery Nov. 1, 1934.

THE LOS ANGELES SHIPBUILDING & DRY DOCK CORP.

Los Angeles Harbor
San Pedro, Calif.

DRYDOCK, PAINT, MISCELLANEOUS: M.V. Storranger; Yt. Scaward; S.S. Missoula.

THE MOORE DRYDOCK CO.

Oakland, Calif.

DRYDOCK, PAINT, MISCELLANEOUS: S.S. Golden Coast; Gas Boat Marco Polo; M.V. Moorecase; S.S. American; Ferry Hayward; Car Float Western Pacific Barge No. 1; S.S. Hawaiian; S.S. Montanan; Yacht Shawnee; S.S. Nebaskan; S.S. Panaman; Light House Tender Sequoia; S.S. Willso; S.S. Golden State; S.S. Alaskan.

The following vessels were tied up for voyage repairs only (no drydocking): Monterey, Tillamook, Frances, Elizabeth, Patterson, Golden Tide, San Marcos.

PRINCE RUPERT DRYDOCK AND SHIPYARD

Prince Rupert, B.C.

DRYDOCK, PAINT, MISCELLANEOUS: 2 fishing boats; 25 ship repair jobs not requiring docking; 50 commercial jobs.

THE PUGET SOUND NAVY YARD

Bremerton, Washington

NEW CONSTRUCTION: U.S.S. Worden (Destroyer No. 352), keel laid Dec. 29, 1932; LBP, 334'; beam 34'2½"; loaded draft, 10'10"; geared turbine engines; Yarrow type water-tube boilers.

U.S.S. Cushing (Destroyer No. 376); LBP, 334'; beam, 35'½"; loaded draft, 10'10"; geared turbine engines; express type boilers.

U.S.S. Perkins (Destroyer No. 377); LBP, 334'; beam, 35'½"; loaded draft, 10'10"; geared turbine engines; express type boilers; building under provisions of National Industrial Recovery Act.

DRYDOCK, PAINT, MISCELLANEOUS: Oklahoma, Arizona, Nevada, Trenton, Utah, Kanawha, Partridge, Mahopac, Tatnuck, Challenge, Wando, Eagle 37, Arrostook, Jason, Kearsarge, Patoka, Pawtucket, Prometheus, Pyro, AS-8 (Ex-Savannah).

TODD SHIPYARD CORPORATION

Seattle, Wash.

S.S. Rappahannock, general alterations and repairs.

UNITED STATES NAVY YARD

Mare Island, Calif.

NEW CONSTRUCTION: Smith, U.S. torpedo boat destroyer (DD378); 340 ft. long, 35 knots speed; standard displacement, 1500 tons, estimated completion date, Feb., 1936.

Preston, U. S. torpedo boat destroyer (DD379); 340 ft. long; 35 knots speed; standard displacement, 1500 tons; estimated completion date, May, 1936.

Preparation of plans and purchase of material in progress. Practically all of the structural steel has been purchased and delivered. The lines have been laid in the mold loft, and preparation of molds and fabrication of steel are proceeding. Neither of the vessels has been laid down, nor have dates yet been set.

Atlantic, Lakes, Rivers

AMERICAN BRIDGE COMPANY

Pittsburgh, Pa.

NEW CONSTRUCTION: Repairs to 20 barges for Carnegie Steel Co.

BATH IRON WORKS

Bath, Maine

NEW CONSTRUCTION: Hull No. 154, Dewey (DD 349), torpedo boat destroyer for U.S. Navy; keel laid Dec. 16, 1932; estimated launching, July 28, 1934; estimated delivery, September, 1934.

Hull No. 159, Drayton (DD 366), torpedo boat destroyer, U.S. Navy; keel laid, March 20, 1934; launching, no date set; estimated delivery November, 1935.

Hull No. 160, Lamson (DD 367), torpedo boat destroyer, for U.S. Navy;

keel laid, March 20, 1934; launching, no dates set; estimated delivery, January, 1936.

BETHLEHEM SHIPBUILDING CORPORATION

Fore River Plant,
Quincy, Mass.

NEW CONSTRUCTION: Heavy Cruiser CA-39, Quincy, 10,000 tons. Estimated delivery January, 1936.

Heavy Cruiser CA44, Vincennes, 10,000 tons. Estimated delivery January, 1937. Keel laid January 2, 1934.

Four Torpedo Boat Destroyers; D-360, Phelps, keel laid January 2, 1934; estimated delivery, December, 1935.

DD361, Clark, keel laid January 2, 1934; estimated delivery February, 1936.

DD362, Moffett, keel laid, January 2, 1934; estimated delivery April 1936.

DD363, Balch, estimated keel laying, April, 1934; estimated delivery, June, 1936.

CHARLESTON DRYDOCK AND MACHINERY CO.

Charleston, S.C.

NEW CONSTRUCTION: Order of plans for sternwheel river steamer Krajewski-Pesant Mfg. Co. to be shipped knocked-down to Venezuela.

Contract for one 5,000-barrel welded steel tanker for Messrs. Thurr & Powers of Boston.

COLLINGWOOD SHIPYARDS, LTD.

Collingwood, Ontario

DRYDOCK, PAINT, MISCELLANEOUS: S.S. Huronic, S.S. Ralph Budd.

DEFEOE BOAT AND MOTOR WORKS

Bay City, Mich.

NEW CONSTRUCTION: U. S. Coast Guard Cutter No. 151, displacement tonnage 1000; keel laid, November 3, 1933; estimated launching, Aug. 1934; estimated delivery, Sept. 1934.

U. S. Coast Guard Cutter No. 152, displacement tonnage 1000; geared turbine drive; B. & W. boilers; 1500 h.p.; keel laid Dec. 15, 1933; estimated launching, Sept., 1934; estimated delivery, Oct. 1934.

THE DRAGO CONTRACTING CO.

Engineering Works Dept.,

Pittsburgh, Pa., and Wilmington, De.

NEW CONSTRUCTION: Contract D-872. Hull No. 997, one diesel steamwheel towboat of 91 gross tons.

Contract No. 983, Hull No. 1151, one steel floating drydock, Bureau of Yards and Docks, Navy Dept., of 4220 gross tons.

Hulls Nos. 1163, 1164; two 750 h.p. twin screw diesel towboats for steel. Contract No. 1019, Hull No. 110, 240 h.p. single screw diesel towboat; size 90' x 21' x 6'9"; 153 gross tons.

Contract No. W1022, Hull No. 111

1) welded steel bulk oil barge, Hull No. 195x40x13'2", Seaboard Shipping Corporation.

Hulls Nos. 1176, 1177—two standard 30'x30'x7'6" steel S&G Barges, 1500 gross tons.

Hulls Nos. 1180 to 1183, four standard 175'x24'x11' hopper type coal barges for stock.

Hulls Nos. 1184 and 1185, two hopper type steel barges 80'x16'9"x6" for city of Philadelphia Dept. of Public Works.

Hulls Nos. 1186 to 1193, eight flush deck S&G barges 130'x28'x7'6" for stock.

Hulls Nos. 1194 to 1201, eight flush deck S&G barges 130'x24'x6'6" for stock.

This makes a total of twenty-seven hulls under contract, with a total gross tonnage of 11,329.

ELECTRIC BOAT CO. Groton, Conn.

NEW CONSTRUCTION: Hull No. 19, leaf submarine, Shark, (SS174): L.B.P. 98'; beam, 25'; standard displacement, 1315 tons; keel laid, October 24, 1933; estimated launching, April, 1935.

Hull No. 20, Tarpon (SS175): L.B.P. 98'; beam, 25'; standard displacement, 1315 tons; keel laid, Dec. 22, 1933; estimated launching, February, 1935; possible delivery, November, 1935.

THE FEDERAL SHIPBUILDING AND DRYDOCK COMPANY Kearny, N. J.

NEW CONSTRUCTION: Two destroyers, DD368 Flusser and DD369 Reid for the U. S. Navy, estimated completion dates—Flusser, Nov., 1935; Reid, February, 1936.

Two barges for undisclosed owner; hulls Nos. 132, 133; L.B.P. 205'; beams, 39'; depths, 14'1 3/4"; 825 D.W. tons; keel laid April 13, 1934.

Hull No. 131, Hygrade No. 10, welded oil barge; keel laid Apr. 13, 1934; launched, May 18, 1934; delivered, June 5, 1934.

Hull No. 132, undisclosed owner; keel laid, May 15, 1934; launched June 19, 1934; delivered, July 2, 1934.

INGALLS IRON WORKS Birmingham, Ala.

NEW CONSTRUCTION: Hull No. 72, river dredge; keel laid, Nov. 6, 1933; launched, May 18, 1934; L.B.P. 140'; beam, 49'; delivered.

Hulls Nos. 73 and 74, river pontoons; keels laid Nov., 1933; L.B.P. 140'; beam, 8'; delivered.

Hull No. 82, Oil Barge, keel laid May 8, 1934; L.B.P. 200'; beam 40'; loaded draft, 8'6"; delivered July 5, 1934.

MANITOWOC SHIPBUILDING CO. Manitowoc, Wis.

NEW CONSTRUCTION: Three U.S. Coast Guard Patrol Boats, Hull Nos. 277 Dione, 278 Electra, and 279 Pandora; L.B.P. 165'; beam 25'3"; loaded draft, 8'6"; speed loaded, 18 knots; Diesel engines, 1300 S.H.P.; estimated launching for all three, June 30, 1934.

Hull No. 280, Lighthouse tender, Tamarack, L.B.P. 111'8"; beam 29'; loaded draft, 7'; speed loaded 10 1/2 knots; diesel electric, 450 S.H.P. No dates set.

THE MARIETTA MANUFACTURING COMPANY

Point Pleasant, W. Va.

Three 165' Patrol Boats for U. S. Coast Guard, Washington, D. C., Nike, Nemesis, and one unnamed; 25'3" beam, 13' 2" depth; will draw approximately 7'; twin-screw type, propelled by two 650 horsepower Winton Diesel engines. Total displacement of each vessel approximately 300 tons; required speed 16 knots—now under construction; estimated delivery dates, Oct. 9, 1934; Oct. 29, 1934; and Nov. 18, 1934 respectively; Nike launched June 23, 1934; Nemesis launched, July 7, 1934.

Two 132'x55'x10" steel covered cargo barges of 850 tons capacity for stock account completed.

Two Side Wheel Self-Propelled 34" Pipe Line Dredges of the Dustpan Type. Total contract price \$1,016,500.00. Delivery in 180 and 210 days—Length, molded, 270'0"; length overall, 277' 1 1/2"; breadth, molded, 50'0"; breadth overall, 84'8 3/4"; depth, molded, 8'6"; depth midships, 9'3", first keel laid May 2, 1934; second keel laid June 28, 1934.

One twin screw diesel driven towboat for U. S. Engineer's office, Vicksburg, Miss.; length molded 176'; breadth, 38'; depth 8'6"; two 650 H.P. diesel engines; two 75 and one 15 K.W. diesel driven generating sets; contract price \$314,750.00, delivery at Vicksburg, Miss., in six months.

MIDLAND BARGE COMPANY (Subsidiary of Treadwell Construction Company.)

Midland and Erie, Pa.,

NEW CONSTRUCTION: Steel Barge 100'x24'x7'.

NASHVILLE BRIDGE CO., Nashville, Tenn.

NEW CONSTRUCTION: Hull No. 286, Snag boat for U.S. Government, keel laid April 1, 1934; estimated launching, June 24, 1934; estimated delivery, November, 1934; L.B.P. 170'; beam 28'; loaded draft 4 1/2'; 600 I.H.P. engine; 2 boilers.

Hulls No. 287, 288, 289, three deck barges for stock, 100'x26'x6 1/2"; completed, July 7, 1934.

Hull No. 290, Derrick barge; keel laid May 25, 1934; launched June 25, 1934; L.B.P. 62'; beam 34'; loaded draft 5'; building for T.V.A.

Hulls Nos. 291, 292, 293, three deck barges; keels laid July 15, 1934; estimated launching Aug. 15, 1934; L.B.P. 123'; beam 29'; loaded draft 7 1/2'; for stock.

Hulls Nos. 294, 295, two deck barges; for stock; estimated keel laying, July 25, 1934; estimated launching, Sept. 1, 1934; L.B.P. 100'; beam 26'; loaded draft 6 1/2'.

Hull No. 296, towboat; keel laid July 3, 1934; estimated launching, Aug. 1, 1934; L.B.P. 50'; beam 12 1/2'; loaded draft 4 1/2'; building for T.V.A.

NEWPORT NEWS SHIPBUILDING & DRYDOCK CO. 90 Broad Street, New York

NEW CONSTRUCTION: H 359 aircraft carrier CV5, Yorktown, for U. S. Navy; keel laid May 21, 1934; estimated delivery, August, 1936.

H360 aircraft carrier, CV6, Enterprise, for U. S. Navy, estimated keel laying, Nov. 5, 1934; estimated delivery, December, 1936.

Ranger, hull 353, aircraft carrier No. 4 for U. S. Navy, keel laid September 2, 1931, launched February 25, 1932, estimated delivery June 4, 1934.

THE NEW YORK SHIPBUILDING COMPANY

Camden, N. J.

NEW CONSTRUCTION: Contract for four destroyers: Hull No. 408, Porter (DD356); Hull No. 409, Selfridge (DD357); Hull No. 410, McDougal (DD358); Hull No. 411, Winslow (DD359); of 1850 tons each; keels laid, Dec. 1933.

Two light cruisers: Hull No. 412, Savannah (CL42), Hull No. 413, Nashvill (CL43), of 10,000 tons each for the U. S. Navy Department; estimated delivery dates are as follows: DD356, Porter, Dec., 1935; DD357, Selfridge, Feb., 1936; DD358, McDougal, Apr., 1936; DD359, Winslow, June, 1936; CL42, Savannah, Aug., 1936; CL43, Nashville, Dec., 1936.

Oil tanker, No. 414, and oil tanker No. 415, for Standard-Vacuum Transportation Company, 15,000 tons D.W. each; keels laid March 26, 1934; delivery early 1935.

THE PUSEY & JONES CORP. Wilmington, Del.

NEW CONSTRUCTION: Nos. 56, Algonquin; 57, Comanche; and 58, Mohawk; cruising cutters, building for Treasury Department, U. S. Coast Guard Service; L.B.P. 150'; beams, 36'; loaded draft 13'; speed loaded, 15 miles per hour; turbine engines, 1500 S.H.P.; two watertube boilers, 325 pounds pressure, construction schedule: No. 56, keel laid, January 16, 1934; estimated launching, July 25, 1934; estimated delivery, September 29, 1934; No. 57, keel laid, January 17, 1934; estimated launching, August 25, 1934; estimated delivery, November 2, 1934; No. 58, keel laid, February 1, 1934; estimated launching, September 21, 1934; estimated delivery, December 8, 1934.

SPEEDEN SHIPBUILDING CO. Baltimore, Md.

NEW CONSTRUCTION: Hull No. 274 (Diesel), Electric, wrought iron hull, Boarding Cutter, for the U. S. Public Health Service, Staten Island, N. Y.; keel laid March 15, 1934; estimated launching, July 21, 1934; estimated delivery, Dec. 27, 1934; L.B.P. 106'8"; beam, 23'; loaded draft, 10'; speed loaded, 12 knots; two 360 B.H.P. Fairbanks Morse engines. Contract received Jan. 11, 1934.

SUN SHIPBUILDING AND DRY DOCK CO.

Chester, Pa.

NEW CONSTRUCTION: Hull No. 150, welded Diesel electric barge for

Atlantic Refining Co., L.B.P. 190'; beam, 34'; delivered July 6, 1934.

UNITED DRYDOCKS, Inc. Staten Island, N.Y.

NEW CONSTRUCTION: DD364, destroyer Mahan, estimated delivery, Oct. 1935, and DD365, destroyer Cummings, estimated delivery, Dec., 1935, for U. S. Navy.

No. 822, tanker, keel laid February 1, 1934; launched June 1, 1934; estimated delivery, July 12, 1934.

Hull No. 823, tanker, keel laid, March 6, 1934, estimated launching, June 29, 1934; estimated delivery, August 10, 1934.

Hull No. 824, keel laid April 3, 1934; estimated launching, Sept. 1, 1934; estimated delivery, October 5, 1934. Data on all three above: L.B.P., 252'; Beam, 40'; Depth, 14'; D.W. tons, 1200; 2 Diesel engines of 375 BHP each, building for Standard-Vacuum Transportation Co.

Hulls No. 825, 826, 827 and 828—barges, the first three for Nelson and Huszagb, keels laid, May 17, 19, and 21, respectively; estimated launching, July 15, estimated delivery, July 15; 100'x30'x8"; the last for Newton Creek Towing Co.; keel laid, May 16; estimated launching, July 15; estimated delivery, July 15; 280'x40'x12'6" (being

built at Crane, 27th St. Plant, Brooklyn, N.Y.)

UNITED STATES NAVY YARD Boston, Mass.

NEW CONSTRUCTION: Destroyer DD370, Case, L.B.P. 334'; beam 35'; estimated delivery, Feb. 1936.

Destroyer DD371, Conyngham, L.B.P. 334'; beam 35'; estimated delivery, May, 1936.

Destroyer DD354, Monaghan, L.B.P. 334'; beam 34'2"; keel laid November 21, 1933; estimated delivery, May, 1935.

Destroyer DD351, Macdonough, keel laid May 15, 1933, L.B.P. 334'; beam 34'2"; estimated delivery, March, 1935; for the U.S. Navy.

UNITED STATES NAVY YARD Charleston, S.C.

NEW CONSTRUCTION: U.S.S. Charleston, gunboat (PG51) for U. S. Navy, building period assigned by Navy Department, Nov. 1, 1933, to Feb. 1, 1936. Work started Feb. 1, 1934.

Coast Guard Harbor Cutters 61, 63, and 64; work started Feb. 1, 1934; keels laid June 8, 1934.

One Coast Guard Cutter (2000 tons). No dates set.

UNITED STATES NAVY YARD New York, N. Y.

tract for the building of fifty steel pontoons at the price of \$61,900.00, the Ingalls company to furnish all labor and materials. Bids were received at the United States Engineers Office, Louisville, Ky.

TOWBOAT CONTRACT GOES TO NASHVILLE COMPANY

Nashville Bridge Company, Nashville, Tenn., was awarded contract recently for the construction of one single screw towboat, by the Director of Purchases, Tennessee Valley Authority, Knoxville, Tenn., at a price of \$19,500, to be delivered in 15 days. The only other tender received was from the Ingalls Iron Works Company, Birmingham, Ala.

CONTRACT AWARDED FOR THREE DIESEL WORKBOATS

Contract has been awarded the Dubuque Boat and Boiler Works, Dubuque, Iowa, by the U.S. Engineer's Office, Memphis, Tenn., for the construction of three steel diesel workboats at a total cost of \$51,800.00—to be delivered during October of this year. The craft will be 55 feet by 13 feet by 5 feet, 6 inches. Other bids submitted were:

| | |
|---------------------------------|----------|
| St. Louis Structural Steel Co., | |
| E. St. Louis, Mo., | \$77,861 |
| Alternate bid | 70,861 |
| Ayer & Lord Tie Co., | |
| Paducah, Ky. | 84,717 |
| Alternate bid | 80,911 |
| Dravo Contracting Co., | |
| Pittsburgh, Pa. | 102,630 |
| Alternate bid | 90,630 |

DRAVO WILL BUILD TWO STEEL BARGES

Dravo Contracting Company, Pittsburgh, Pa., have been awarded contract

NEW CONSTRUCTION: Hull No. 35, Hull, destroyer; keel laid, March, 1932; no further dates set; L.B.P. 334'; beam 34'2"; standard displacement, 150 tons; geared turbine engines; express type boilers.

Hull No. 353, Dale, destroyer, dimensions same as above; keel laid, February 10, 1934; no further dates set.

Hull No. 41, Brooklyn, light cruiser no dates set; L.B.P. 600'; beam 61'5", standard displacement, 10,000; gear turbine engines; express type boilers.

Hull No. 50, Erie, gunboat, no dates set; L. B. P., 308'; beam, 41'; standard displacement, 2000 tons; geared turbine engines; express type boiler building for U.S. Navy.

UNITED STATES NAVY YARD Portsmouth, Va.

NEW CONSTRUCTION: Torpedo Boat Destroyer Tucker (DD374) for U.S. Navy, 341 ft. long; beam 33'; loaded draft, 10'10"; treaty standard displacement, 1500 tons; No. 4 boilers; 35 knots speed; estimated delivery, February, 1936.

Torpedo Boat Destroyer Downer (DD375) for U.S. Navy, 344 ft. long; beam 35'; loaded draft, 10'10"; treaty standard displacement, 1500 tons; No. 4 boilers; 35 knots speed; estimated delivery, May, 1936. Laying down line under way in mold loft.

for the building of two hopper-type steel barges for the Department of Public Works, City of Philadelphia, Pa. The barges will be 80 feet by 16 feet by 10 feet, and will weigh 110 gross tons.

SECRETARY OF NAVY APPROVES SHIP PROGRAM

Contract plans for 24 new warships were signed by Secretary of the Navy, Claude A. Swanson, on June 6, last, sum of \$40,000,000, allocated from the \$1,178,000,000 public works and emergency relief bill recently passed by Congress, will be used for this purpose. The building of the ships is under the authorization of the Vinson Act, which provides for the building of the Navy's treaty strength by 1939. A complete list of the projected warships follows:

One heavy cruiser, eight-inch gun, 10,000 tons—to be laid down under terms of the London naval treaty, after January 1, 1925.

Three light cruisers, six-inch gun, 10,000 tons each.

Two heavy destroyers, 1850 tons each.

Twelve light destroyers, 1500 tons each.

Six submarines, about 1300 tons each.

The 14 destroyers and 6 submarines are the ships which will be built for public works money. Funds to start four cruisers were provided in this year's annual naval appropriation bill.

As soon as the funds are appropriated for the smaller vessels, Secretary Swanson will advertise for bids for the entire construction work. The money for the 14 ships was scheduled to be available July 1. It is expected that the bids will be opened some time in August of this year.

American Shipbuilding

(Continued from Page 249)

The contract price for the job was \$314,750.00, delivery at Vicksburg, in six months.

McCLINTIC-MARSHALL GETS PONTON CONTRACT

Contract has been awarded the McClintic-Marshall Corporation, Bethlehem, Pa., for 44 steel dredge pontoons, to be delivered afloat to the U. S. Engineer, Vicksburg, Miss. Bids were received on June 12, last. The accepted bid offered by McClintic-Marshall Corporation was \$80,740.00. Other tenders were as follows:

Ingalls Iron Works Company, Birmingham, Ala., \$82,500, sixty days.

St. Louis Structural Steel Company, E. St. Louis, Ill., \$93,984, sixty days; alternate, \$86,636, sixty days.

Midland Barge Company, Midland, Pa., \$91,960, sixty days.

Dravo Contracting Company, Pittsburgh, Pa., \$92,740, 50 days.

NEWPORT NEWS WILL RECONDITION TWO SHIPS

Contract for reconditioning two steamships—the Albarez and the Turrialba of the United Fruit Steamship Corporation, Boston, Massachusetts—was recently awarded the Newport News Shipbuilding and Dry Dock Company, Newport News, Va. Details of the work to be done were not given out.

PONTON JOB AWARDED TO INGALLS IRON WORKS

Ingalls Iron Works Company, Birmingham, Ala., was recently awarded con-



Marine Insurance

The Care of Eyes at Sea

Some Suggestions for Protecting Marine Workers

There are a number of occupations in which seamen are engaged aboard ship that have quite definite eye hazards. Among these are: the handling of ashes or coal; the use of welding or cutting torches; chipping or burning old paint; caulking hull seams or steam pipe joints; flying particles from cleaning flues; transferring chemicals, either liquid or powdered; and sun glare on sea or decks.

The General Safety Rules for the United States, and all local or district codes of safe practice prescribe the use of proper goggles to protect eyes against such hazards.

The best available goggles are rather uncomfortable to wear, especially in conditions of high temperature, and although most seagoing ships are now supplied with the equipment, many masters find that it is difficult to get the men to use it. One resourceful sea captain solved the difficulty thus, as narrated by Henry Blackstone before the Marine Section, National Safety Council:

"A captain of one particular ship had been plagued for a long time with the refusal of his men to wear goggles. He got fed up with arguing with them. One day, when he was signing on, he asked the men if they objected to wearing goggles. No, one did. He stuck a rider in the articles, which was read to all the men, in which they agreed to wear goggles when doing any work requiring their use, subject to such penalties prescribed by the navigation laws for infraction of any one of the articles. It so happened that in that particular voyage they drew one of these particular men who think they know it all. He decided he'd make a test case out of it. The first time he refused to wear his goggles the captain fined him two days' pay for disobedience of orders. The second time he

fined him two days' pay. The third time he soaked him four days' pay for disobedience of orders. When they got in and paid off, this man refused to take his pay, and made an issue of it, carrying it down to the barge office, where the commissioner upheld the captain. It had a very salutary effect in this case."

A great majority of eye injuries can be prevented by the proper use of suitable goggles.

A prime consideration in first aid treatment of all eye injuries is the prevention of infection. It is therefore highly important that no attempt be made by a fellow seaman to treat an injured eye. The ship's doctor should be called at once, or the officer in charge.

The standard routine to be carried out by ship's officer, or any first aid worker, after thorough washing of hands and instruments in antiseptic solution, is

1. The Removal of Dust and Dirt—The lids must be gently separated and the eye flushed with boric acid or sterile normal salt solution, which can be followed by a couple of drops of freshly made 10 per cent argyrol solution. The eye may be bandaged to exclude light.

2. Foreign Bodies—Removal should be attempted only under direction by radio of a competent physician and the case gotten under doctor's care as promptly as possible.

3. Acid Burns—The best first aid treatment for acid burns is flushing with running water. The patient should receive medical attention as promptly as possible after this is done.

4. Alkali Burns—The first aid treatment for alkali burns is the same as for acid burns.

The Sinking of Nantucket Lightship

Lightship No. 117, occupying the Nantucket Shoals Station, was collided with by the steamship Olympic at

10:06 on the morning of May 15, in dense fog, and sank on station with the loss of seven members of its crew.

Boats from the Olympic were immediately put over, and 7 of the 11 officers and crew who were on board the lightship were picked up; 4 men went down with the vessel. Three of those picked up died of injuries.

Survivors of the disaster were: George Brithwaite, master; Clifton E. Mosher, first officer; John F. Perry, radio operator; and L. U. Roberts, oiler.

Those who went down with the ship were: Isaac Pine, cook; Mathew S. Rodrigues, seaman; John Fortes, seaman; and Ernest B. George, seaman.

Those who died were: William W. Perry, engineer; Justin F. Richmond, oiler; and Alfred Monterio, second cook.

Nantucket Lightship No. 117, was a first-class lightship, built in 1930, and first placed on station May 4, 1931. It had diesel electric propulsion, and modern types of signaling equipment.

The Secretary of Commerce promptly appointed a committee of three officers from marine branches of the Department to investigate the sinking of Nantucket Lightship, and to obtain information bearing on the accident.

The Nantucket Shoals were first marked in 1854, a lightship being placed about 19 miles from Nantucket Island, near Davis South Shoal. This lightship broke adrift in 1855, and stranded near Montauk Point, Long Island, but was gotten off and repaired. Within a year a new vessel was built, and stationed on Nantucket Shoals in January 1856, and finally removed in November 1892 after nearly 37 years of service on this Station. This lightship station has been moved three times, always southerly or southeasterly, and farther off the shoals; in 1884, 2½ miles; in 1892, 10 miles; and in 1896, 17 miles; and its present location is

more than twice the original distance from Nantucket Island.

Notwithstanding the exposed position of this lightship no record is recalled of the vessel having been damaged by collision prior to this year. Eight different lightships have occupied the station, and they have suffered various other vicissitudes, but without previous loss of life, so far as recorded, during the 80 years since the lightship station was established.

Last winter when the incoming Atlantic liners were reporting their experiences after an unusually severe storm, the commander of one of them, who had observed the vessel on station as he passed, said that the men who deserved the iron cross were the men who were keeping Nantucket Lightship.

Some Interesting Premium Rates

Shippers who complain of high marine insurance rates may find some interesting comparisons in the following historical data:

In 1870, due to British blockade, the rate from Massachusetts to Haiti and return was 40 per cent;

In 1799 Southwest monsoon season rates of 16 per cent were charged from Calcutta to Hamburg, half of which rate was for Hoogly River from Calcutta to the Sand Heads;

The War of 1812 brought rates of 50 per cent for new, well found, fast sailing vessels, while older vessels could not be written for less than 75 per cent;

In 1828—32 rate from Boston to China and return was 4 per cent for new modern types of Boston-built sailing vessels, 5 per cent for new British vessels, and ranging upward from that figure for older ships.

American Foreign Trade. The first quarter of 1934 registered a 54 per cent increase in the value of American foreign trade as compared with the initial three months of 1933. This is a remarkable gain, in view of the fact that there has been no lowering of tariffs, exchange restrictions, or import quotas. The increase has been general for every major geographic division of the world, with the exception of imports from Southern or Latin North America, which registered a slight decline.

Tidal or Seismic Sea Waves

N. H. Heck, Chief

Division of Terrestrial Magnetism
and Seismology, Coast and Geodetic
Survey

A recent compilation of so-called tidal waves or seismic sea waves from the earliest records to the present has been prepared by the writer. This was done in part to meet the needs of the naval and merchant navigator for more information on the subject and, in part, as a contribution from its American Committee, of which the writer is chairman, to the International Commission on Raz de Marees of the International Geodetic and Geophysical Union. The American Committee, on which is represented the Hydrographic Office of the Navy, the Weather Bureau, Johns Hopkins University as well as the Coast and Geodetic Survey, is organized to see that such information regarding present day occurrences is now collected and sent to the Commission.

The complete list will be published in the Annals of the Commission, but this will not interfere with giving pertinent facts to the field force of the Coast and Geodetic Survey.

Of a total of 224 such waves from 425 B. C. to 1934 A. D., 76 occurred in waters of the Americas, records concerning which did not begin until 1530. On the shores of the United States and regions under its jurisdiction, there are listed 4 in California (none apparently important), 5 in Alaska, 5 in the Philippine Islands, 1 in Panama (slight), and 2 in Puerto Rico and the Virgin Islands.

The greatest known height ever recorded was 135 feet in the case of the wave from the explosion in 1883 of Krakatoe on the adjacent Java shore. Buildings, 47 feet above sea level, were washed away. At another place the wave was 72 feet high and the Dutch man-of-war *Berouw* was carried 1.8 miles up a valley and left 30 feet above sea level. Waves 100 feet high have been observed both in Japan and Chile.

In addition to the case mentioned, many kinds of vessels have been thrown ashore or jeopardized. The list has included Malay proas, Spanish galleons, Russian men-of-war,

merchant vessels, and U. S. naval vessels. Three naval vessels have been involved in such occurrences. The U.S.S. *DeSoto* lost her propeller at St. Thomas by striking against wharf and the *Monongahela* was driven ashore at St. Croix. In the same year, the U.S.S. *Wateree* was driven far inshore along the northern coast of Chile.

Recent occurrences of interest have included a series of waves at intervals over a period of 27 days of the west coast of Mexico not far from Acapulco; a wave from the Grand Banks earthquake of 192 which swept up narrow inlets in Newfoundland and destroyed several villages; and the great Japanese wave of 1933 on the northeast coast of Japan which rivaled any of the many similar occurrences in this visited region.

A wave which caused damage in a region where a number of the vessels of the Survey have been at work was that accompanying the earthquake of 1918 which severely damaged Mayaguez, Puerto Rico.

In many cases our tide gage records, particularly those on the California coast and the Hawaiian Islands, have been an important source of information as to whether a given earthquake was accompanied by tidal waves, especially in such regions as the outlying portions of Oceania. Observation of the wave by persons competent to report the is often missing. As recently as 1906 a wave which severely damaged Palmerston Island did not become known for three months.

The records indicate that in the vast majority of cases there is a withdrawal of the water first, though the opposite has been observed. It must be remembered that observations are usually made under conditions of severe mental stress, and this must be taken into account in appraisal.

[Bulletin U.S.C. and G. Survey]

Mirage at Sea Lifts Lighthouse

Second Officer W. D. Potter, of the American research ketch *Atlantis*, Capt. F. W. McMurray, reports that on May 27, 1934, from 0000 to 0100 (60th meridian time) while on a pat-

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from Mount Desert toward Nova Scotia observed the following lights flashing sharp and clear at the distances recorded:

| | Distance Seen miles | Visibility* miles |
|-----------------------------|---------------------------|----------------------|
| Goose Peak | 27 | 14 |
| Michias, Seal Island | 27 | 14 |
| Grand Manan, SW. Head | 35 | 20 |
| Annnet Rock | 35 | 14 |
| Brier Island | 35 | 15 |

At 0030 the sky was clear with cloud bank to the southeast; horizon dull and poorly defined; bright moonlight; wind south, force 1; sea smooth; small southerly swell; barometer 30.38 inches; temperature of the air, 46° F.; and of the sea 43.5° F.; and first of the ebb. At 0140 the lights disappeared (except Brier Island, bearing 68°) and could not be seen from a height of 40 feet above the deck. The horizon became sharper with increasing cloudiness to SE. (A u); no wind; sea smooth; barometer 34.48 inches; temperature of the air, 48° F., and of the sea, 45.6° F.

At 0300 the ship stopped on station, and the following lights were visible:

| | Distance Seen miles | Visibility* miles |
|----------------------------|---------------------------|----------------------|
| Brier Island | 22.5 | 15 |
| St. Mary | 28.0 | 16 |
| Lurcher Lightship | 21.5 | 13 |
| Gannet Rock | 21.5 | 14 |
| Michias, Seal Island | 27.5 | 14 |

The sky was clear; calm, smooth sea and small swell; horizon dull before moonset and sharp thereafter; barometer 30.38 inches; temperature

of the air 48° F., and of the sea 45.3° F. At 0330 all these lights again disappeared, except Brier Island, which remained visible until after daylight. At 0500 sighted Lurcher Lightship at a distance of 14 miles, the whole vessel being clearly visible. When about 5 miles off the lightship two distinct shore lines were visible, one above the other, with about 1" of clear sky between them. A line of cumulus cloud was reflected in the sea inshore of the lightship to the southwest.—(U.S. Hydrographic Bulletin.)

*The lights were observed at a height of 13 feet.

Compensation Act Amendments

By W. H. Pillsbury
Deputy Commissioner

Word has just been received from Washington of the adoption by Congress of five amendments to the Longshoremen's and Harbor Workers' Compensation Act, effective May 26, 1934. These amendments do not make any important change in the scale of benefits or costs of the Act, but relate to its administrative features.

The first of these amendments permits suspension of compensation payments if the employee unreasonably refuses to submit to medical or surgical treatment. This has already been the practice in some districts, but statutory authority has heretofore been considered doubtful.

The second amendment corrects confusion created by court decisions in the application of the provisions

relating to permanent disabilities. The schedule of permanent disability payments has been reduced but the allowance in each case is provided to commence upon the termination of the actual temporary total disability. The provision will simplify the law.

The third amendment further carries out this simplification by repealing Sec. 8(c) 22, which provided for excess healing period, and substituting a new clause which will permit awards for several permanent disabilities to run consecutively. To illustrate: If an employee sustains permanent disability to both feet, or a hand and a foot, the injury to each such member is to be rated separately and the injured worker allowed the sum of his separate disability allowances.

The fourth amendment permits commutation of any part of future compensation benefits where necessary. The older law had been interpreted to prohibit such partial lump sums. The new provision also provides for an additional interest discount in case of a lump sum for a widow, based upon the probability of her remarriage, to be figured according to the remarriage tables of the Dutch Royal Insurance institution.

The fifth amendment is the most important. It extends the period of time within which a decision can be reopened from 30 days from the date of the decision to one year from the date of last payment, and eliminates the requirement that a case can only be reopened during the term of the award. It gives the employer credit, however, for any overpayment in case of an award decreasing the compensation rate.—(Accident Prevention News Letter.)

Balfour, Kessler Agencies Inc.

Marine Insurance Department

AMERICAN AND FOREIGN
NORTH CHINA

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UNION OF CANTON
QUEENSLAND YANG-TSZE

BRITISH AND FOREIGN
PENNSYLVANIA

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Marine Insurance Notes

Passes at 72. The steam tug Monitor, built in Chicago in 1862, was scrapped recently as her keel did not warrant repairs. After a long, useful career on the Great Lakes, she was taken in 1906 to the Upper St. Lawrence, where she was used as a dredge tender.

Strike Insurance. On June 13, the Board of Marine Underwriters of the Pacific passed a resolution withdrawing hitherto published rates on strike and riot cargo insurance, and declaring new

and higher rates in effect. The rate in force had been 10 cents per \$100.00 valuation for 15 days. The new rate is 25 cents per \$100.00 valuation for 30 days and 50 cents for unlimited time.

Chicago vs. Silver Palm. In the United States against the British Motorship Silver Palm, Federal Judge Harold Lauderback handed down a decision on June 19, holding the British vessel entirely responsible and exonerating the U.S. Cruiser Chicago. On October 24

last, off Point Sur in a fog, the Silver Palm collided with the cruiser Chicago, almost cutting her in two at a point forward of the armor belt, killing three of the crew, and injuring three others. Judge Lauderback appointed Ernest Williams, United States Commissioner, as a special master to take further testimony and determine the amounts of damage due.

High Heels Responsible. A woman sued the owner of a fishing boat for damages because she fell descending companion-way from the upper to the main deck. Court declared that the

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airway was constructed and maintained in the customary and usual manner, and while steep, was entirely safe for use, and held that the libellant was at fault in wearing shoes with heels three or four inches high, while descending such a stairway.

World's Oldest Merchant Ship. On the Baltic, in regular operation between Danish, Swedish and German ports, is the auxiliary engine sailing vessel, *relholm*, of 41 gross tons, built in 1776, ... one hundred and fifty-seven, and still working.

(Shipbuilding and Shipping Record.)

Aids to Navigation. The annual report of the United States Secretary of Commerce shows that the Lighthouse Service now maintains 22,495 marine aids to navigation, an increase of 921 over the previous year. Many improvements were made in existing aids. Four radio beacons were added, bringing the total number of these very useful aids to 104. One interesting addition is the powerful fog siren on one of the piers of the new bridge across the Mississippi river above New Orleans. It is claimed that this siren can be heard distinctly over a distance of ten miles.

TRADE NOTES

Fueling Forty Ships.—The following particulars connected with the fueling of forty ships of the United States Navy during its stay in New York Harbor recently is of interest.

The fuel oil was supplied by the Shell Eastern Petroleum Products, Inc., and the transportation of the fuel oil was handled by the Seaboard Shipping Corporation of New York City. Of the forty ships involved two were cruisers and the others destroyers.

The entire fueling of these ships was begun on Tuesday afternoon, June 12th and finished on Friday afternoon, June 15th. The Navy cooperated in every re-

spect to make the delivery of bunkers as rapid as possible, and because of this cooperation the Seaboard Shipping Corporation reports that fueling continued day and night and that there was not the slightest delay in the procedure nor an accident of any kind. The vessels were at widely scattered locations which necessitated continuous tug service which was rendered by the Moran Towing & Transportation Co., Inc.

The engineer officers of the various ships expressed themselves as being very well pleased with the service rendered. In Navy language they said, "It was snappy work."

New Cutting Blowpipe. The Linde Air Products Company has just announced a new oxy-acetylene cutting blowpipe, known as the Oxweld Type C-24. No other blowpipe has heretofore incorporated into one unit such striking features of design and operation. Designed essentially to serve as a general-duty cutting blowpipe, it is capable of doing heavier work if necessary, and will operate with less oxygen pressure than any preceding Oxweld cutting blowpipe.

Some of the outstanding features are: an entirely new design of cutting oxygen valve, the valve being placed in an easily accessible position; a long external cutting valve which makes the valve easy to operate with the hand in normal gripping position; nozzles with seat protectors; closer spacing of the heating orifices about the cutting oxygen opening; new nozzle sizes; interchangeable large-capacity ball-type inlet - needle - valves; interchangeable low-pressure injector or medium-pressure mixer.

Diesel on Missionary Ketch. The Board of Home Missions and Church Extension of the Methodist Episcopal Church does a work of education and mercy in the vast regions of the North Pacific Ocean Coasts. Each year they make a trip by boat to all the far and little known habitations in that wide expanse. On the boat is a doctor, a dentist and a missionary.

Walter Thorbet, western representative of the Board of Home Missions, after a very careful investigation of all engines available, selected a two-cylinder 35 horsepower Monovalve Diesel Engine, for auxiliary power in their 55-foot ketch, *Ida Helen*, in this service.

"Our boat," said Mr. Thorbet, "is away from civilization for months at a time. It travels through channels in the North Pacific where tides run as fast as six knots an hour. It is essential that we have a dependable engine. That is why we selected the Monovalve."

Special Twine Package. For many years twine has come in coils, on reels, or in balls. Now the Tubbs Cordage Company and Portland Cordage Company offer twine users a real innovation.

Pacord, the paper covered Manila twine, comes in a carton: This convenient five-pound package not alone keeps the twine clean and prevents the ball or coil from becoming snarled but can be placed anywhere. It is convenient for home or store use, on land or sea, wherever packages must be wrapped with neat, clean, strong, and economical twine. The twine which pulls easily from this practical container comes in ten sizes—from 200 to 800 feet to the pound. One must admit that it is certainly more convenient and attractive to have a twine housed in a carton than loose in a ball or coil where it may collect dust or become tangled beyond use.

Lukens Cromansil Steel. A bulletin issued by the Lukens Steel Company of Coatesville, Pennsylvania, describes the properties and applications of their latest product. Cromansil steel is a chromium, manganese, silicon alloy steel developed to replace carbon steels in applications requiring high strength and good ductility in the "as rolled" condition. Possible wide use of this material in ship construction is indicated by the following excerpt:

"The desirable qualities of Cromansil steel suggest its use for many different types of construction. Because of its higher strength, it permits lighter weight construction, and despite the higher unit cost the total cost may be less than when carbon steel is used. This applies particularly in cases where the weight of the structure is a large part of the load to be carried, as in the case of long span bridges.

"In the construction of ships, the cost of the steel may be of only secondary importance. The reduction in the weight of hull and power plant results in other economies which may easily overbalance the premium paid for high strength steel. Thus for a ship of any given size and speed the capacity of boilers and engines can be reduced, resulting not only in a lower initial cost for the power plant but in a substantial saving of fuel. Similar savings may be obtained by the use of Cromansil steels in the construction of freight cars and trucks, as the pay-load can be increased by the amount that the dead weight is decreased without any increase in power or other costs."

Lukens Steel Company will be glad to cooperate with metallurgists, engineers and designers who may be interested in the use of Cromansil steel, and to furnish such additional detailed information as may be desired.

*Pacific
Marine Review*

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The Longshoremen's Strike

(Continued from Page 241)

hours to be worked in any given period, and after any man had worked the maximum number of hours, the employer agreed that he would not work the man any longer during the period but would fill his place with another man from the Registration list.

● Union Hall a Closed Shop

The Strike Committee of the longshoremen denounced the agreement and demands that the union control the hiring hall, and that all men be dispatched by a union dispatcher.

This would not only mean a closed union shop, under which no man who was not a member of the union could get a job, but it would place the union in complete control of the selection of employees for the employer. The employer would no longer be able to select his employees, but the union could dictate whom he must employ. The old time resident longshoreman would no longer work steadily for a single employer, but would be subject to be rotated out of his job, so that 4000 men might share the work which requires on the average but 1300 men.

The longshore situation is very largely an unemployment situation. It cannot be solved by requiring the steadily employed men to rotate their jobs with newcomers to San Francisco who never worked on the waterfront before. Nor can it be solved by a thinly disguised plan to deprive the employer of his fundamental right to select his employee.

A jointly operated hiring hall as provided in the June 16 agreement is fair and gives all that any fair minded longshoreman can reasonably ask. The union hiring hall or union dispatcher is merely a round about way of securing a closed union shop and of depriving the employer of his right to select his employee.

The employer must preserve his right to select his employees; no competent workman should be discriminated against solely because of membership or non-membership in a labor union; and a closed shop is contrary to the provisions of Section 7(a) of the Recovery Act and of the Joint Resolution of June 19, 1934.

● Maritime Unions Strike

After the longshoremen went on

strike on May 9, various seafaring unions declared strikes. Sometime later the longshoremen announced that they would not return to work even though their demands were met unless the demands of the seafaring unions were first met.

As I have pointed out, these demands that the demands of the seafaring unions must be met before the longshoremen would return to work were formally withdrawn by the Pacific Coast Executive Committee of the I. L. A. at a meeting participated in by the Federal Mediators on May 27. When the June 16 agreement was signed in Mayor Rossi's office it was distinctly agreed that the longshoremen would return to work before the demands of the maritime unions were considered, but that such demands would be promptly taken up by the Federal Labor Board.

After their repudiation of the June 16 agreement the longshoremen again advanced the demand that the demands of the maritime unions must first be settled before the longshoremen would return to work and this demand was repeated yesterday before your board.

The utter impossibility of complying with this demand is so easily recognized, and has been so frequently explained, that its continued assertion would almost force the conclusion that it was being adhered to for the purpose of preventing a settlement of the strike.

First. The longshore controversy is between the waterfront employers and longshoremen who work at a particular port. It is a local matter, capable of local settlement. The Waterfront Employers Union of San Francisco is composed of 10 steamship companies; 4 of whom have their head offices in New York; 2 foreign lines and 10 contracting stevedores. It is utterly beyond their power to settle a controversy involving wages and working conditions of seafaring personnel, affecting more than 100 companies whose ships call at Pacific Coast Ports and work all over the world.

Second. The oil companies operating tanker fleets are the largest employers of maritime labor. They do

not employ longshore labor and are therefore not parties to the longshoremen's strike. The sailors on the steam schooners perform the longshore work in connection with the vessels and they are therefore not concerned with the longshore strike. The vessels of 36 foreign steamship lines call at San Francisco. They employ foreign crews and are not involved in the seamen's strike, yet the longshoremen refuse to work the cargo, unless the seamen's strike with which they are not concerned is first settled.

Third. A fundamental difficulty the situation is that the striking unions have not been able or are unwilling to present credentials showing that they do in fact represent the seagoing personnel. The shipping companies have constantly stated both to this Board and to the union representatives that they are willing to meet their employees for the purpose of collective bargaining, but they do insist that they must deal with representatives chosen by the employees and not merely with unions who claim to be such representatives and yet who will not or cannot present credentials.

The law authorizes this Board to hold secret elections of employees which they may choose persons or organizations to represent them for the purpose of collective bargaining. The steamship companies have offered and again offer to cooperate with the Board in the holding of such elections and to meet with the representatives chosen by the employees.

In many of the companies, a few seamen have gone on strike. Some companies have not lost a single licensed man. This leads many of the companies to believe that the unions are not the chosen representatives of their employees. But an election will decide the question and the companies will cooperate in the holding of such elections.

Fourth. There is a conflict between the unions themselves as to who represents the men. This can only be decided by elections.

a. For instance each of the following unions have appeared before your Board claiming to represent the Licensed Deck Officers:

Masters, Mates and Pilots Association

(Page 16 ad section please)

Pacific Marine Personals



(Photos, courtesy of S.F. Chronicle.)

Showing how men prominent in San Francisco commercial circles met the "crooshal" situation when famine stalked California Street during the red-tinted days of July. Without a single Permit, men pictured above formed "squads right"—for K. P. duty—and achieved success at "dealing 'em off the arm". Five hundred members was the average daily response to the mass call. Many volunteer napery-spreaders, table-setters and food-passers proved quite expert indicating fine home training. "Just picked it up around the house", one of them modestly confessed. Our readers will recognize (we hope) Les Houdlette, Gene Raphael, D. E. Snodgrass, A. B. Knowles, H. R. Hunter, George Ismon, E. H. Walter and Fred W. Baldwin, Jim Eschen, H. R. Gaither, Joseph Sweet, Lloyd Smith, Bill Whalen, Philip A. Coxon, Martin Kidd and R. L. Durbrow.

One Strike—No Outs, One Big Hit, Plenty Errors!

Two thousand members of the San Francisco Commercial Club, substantially representative of the community's leading business interests, did not change their eating habits by reason of the late-lamented cooks' and waiters' walk-out.

Volunteers from the club's roster were equal to the emergency. On the team of "San Francisco knows how" waiters were a number of men associated with the shipping fraternity, including Phil Coxon of the Moore Dry Dock Company who is a director of the club and Jim Eschen, vigilant leader of the Mis-information Club which recently took out a charter on the floor of 'Change. The emergency squad was headed by President of the Club, H. R. Gaither, who person-

ally drilled the men in the thumb-dipping science. "As a head-waiter, President Gaither is a darn good banker", one diner expressed his delight.

The twenty men who took care of the appetites of nearly five hundred club members on the first day of the strike functioned so well that the word got around—and a larger turnout than any during recent weeks responded the following day. Phil Coxon gave out an interview stating that there was a movement under way reflecting the wishes of a powerful majority of the Club's membership to draft this gang for permanent duty. "It's nice work", said the ship repair man, "and one meets many prominent people—but the wear and tear on the thumb is something else again and I,

for one, will be glad to step back into private life."

The theme-song, "Twenty Years a Waiter—and Never Dropped a Plate" was unanimously chosen for its stirring and comforting attributes.

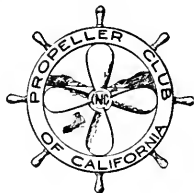
Strategy must be combatted with Strategy—but it's tough to be a White Collar man when they lock up the laundries.

Back of the good fellowship and comraderie which prevailed was the invincible spirit of real Americanism strong in the determination that the business of San Francisco should and would carry on despite the interference of illegal authority usurped by radicals.

You can't suppress the Vigilante heritage of the true Californian!

Official News of the

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Fletcher Monson

Ralph W. Myers

The summer vacation period is nearly over and the members of the Propeller Club are looking forward with pleasure to a resumption of our activities. The good ship PROPELLER will soon be launched again for another successful year.

The Luncheon Committee has been making plans for bigger and better luncheons. Many interesting maritime programs are in the locker ready to be unshackled as the occasion arises.

The Entertainment Committee have all plans and specifications made up for a real maritime banquet; time: Early Fall; place: Some ship. Watch the wireless bulletins for developments.

The Golf Committee have had some good observations, both terrestrial and celestial, and will soon have a good position worked out from which the Latitude and Longi-

tude of the Fall Golf Tournament will be deducted. So it behooves our Golfing Propellers to sharpen their niblicks so that they will be able to navigate the greens and give the sand traps and other obstructions to navigation a wide berth.

Our good friend John Cordes is back in the home port after a lengthy voyage that took him through the Eastern and Southern States. Glad to see you back John.

As we go to press we are glad to learn that the one and only Dick Glissman has got his voice back again; Dick acted as Master of Ceremonies and sang his famous cat song on so many occasions a while back that he lost his voice temporarily. However, he is OK again, and at the inaugural Fall Luncheon, Ralph Myers will give him a good workout to see if he is up to par.

Our President, Harry Haviside, is proud of his model of the ship Flying Cloud, and rightfully so, for it is one of the finest pieces of work that has ever been put together anytime, anywhere. Harry invites all Propellers to drop in and see his prize.

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● Going Full Speed Ahead!

The many good friends of Jerry Lalor—aboard ship and shoreside—and this goes for both Coasts—will be pleased to learn that he is president of the Neptune Electric and Supply Company, San Francisco firm, handling pilot house instruments, direction finders and marine specialties and repairs.

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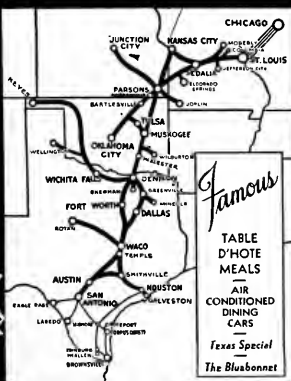
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Atlantic - Far East

WEEKLY SAILINGS from New York, FORTNIGHTLY from Boston to Honolulu, Yokohama, Kobe, Shanghai, Hongkong, and Manila FORTNIGHTLY SAILINGS from Manila, Hongkong, Shanghai, Kobe, Yokohama, Honolulu to New York and *Boston.

*Transhipment New York.

Mediterranean - U. S. A.

PORTNIGHTLY SAILINGS from Alexandria, Naples, Genoa, and Marseilles to New York, Boston, Los Angeles Harbor, San Francisco. Cargo destined Oakland, Portland, Seattle or Vancouver subject to San Francisco transhipment.

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FORTNIGHTLY SAILINGS between Boston, New York, Havana, Colon, Balboa, Los Angeles Harbor, San Francisco, Honolulu, Kobe, Shanghai, Hongkong, Manila, Singapore, Penang, Colombo, Bombay, Suva, Port Said, Alexandria, Naples, Genoa, Marseilles, thence New York

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Final sailing at these low summer Round-Trip fares: S.S. Mariposa from San Francisco, August 21; from Los Angeles, August 22.

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HAVE GIVEN BIRTH TO SOME BIG IDEAS

WE ARE PROUD of our table-cloths. Many of them go to our laundry bearing distinguished marks of service. Curlicues. Doodads. Thing-a-ma-bobs. But we are happy to have them help you give birth to that big idea.

Thanks to you, and you, and you, the Roosevelt is becoming one of the most popular New York gathering places for sales and advertising executives. Perhaps it is that dollar lunch served in the Grill. Perhaps it is that we have reduced our room prices to \$4. Perhaps it is the quiet, efficient service.

Come on over and use our table-cloths, too,* and if an extra one is needed to help you plan that campaign — just ask the head waiter.

*Pencils though. Fountain pens and indelible crayons leave us cold.

The ROOSEVELT

B. Gordon Hines, Manager
Madison Avenue at 45th Street New York City

A UNITED HOTEL

Daulton Mann is back at his desk at New York headquarters of The Grace Line after a short trip to Europe in the interests of his company. The executive vice-president returned on the Berengaria.

Jack Bond, who looks after marine sales of International Paint Company, Inc., out here in these parts, had the pleasure of a visit from **Arthur M. N. Holzapfel**, official of the paint manufacturing firm who made an air trip from New York on business and to see his many friends, both in Los Angeles and San Francisco districts.

Alan Smith, grandson of Sir William Reardon Smith, head and founder of the Reardon Smith Line, announced plans of his company to increase and speed up service—United Kingdom-Pacific Coast.

This British freight fleet plans to have eight refrigerated freighters by 1935. Mr. Smith declared recently at San Pedro. The motorships *Devon* and *Bradfyne*—16-knot "reefer" vessels—which have just completed maiden voyages will be supplemented by two companion motorships soon to be built. With these four vessels will operate four cargo carriers of the Fresno City type.

● In Pacific Coast Engine Rooms

C. A. Harrison is now chief engineer of the Grace Line motorship *Santa Monica*. He was formerly second in the *Santa Rosa*.

Edward Norstead is first assistant on the *Julia Luckenbach*, with **Fred Wallace** as second.

Ray Steen and **G. C. Archer** have joined the Matson Line.

● New Todd Vice President

J. D. Haines who has been associated with Todd at Harbor Island, Seattle, for eighteen years has been elevated to the vice-presidency.

● To Select Permanent Director

Secretary **Roper** of the Department of Commerce has designated **Homer A. Ferguson**, president of Newport News Shipbuilding & Dry Dock Company and **Edward P. Farley**, chairman of the American-Hawaiian Steamship Company to submit panels of six men each for aiding in the selection of a permanent director of the United States Shipping Board Bureau.

● Paladini Buys 74-footer

A. Paladini, Inc., will add another Diesel trawler to their fleet. They have recently purchased the hull of the cannery tender *Falcon* from Alaska Packers and will install a 6-cylinder 125-horsepower American Monovalve. The 74-foot diesel powered vessel is to be renamed when she joins her sisters in the fish-trans-
porting business.

Richard T. Lawrence, **Miss Frances Hussey**, **Charles A. Mueller** and **Ralph V. Vincent** of San Francisco were today awarded cash prizes by **J. B. Levison**, President of the Fireman's Fund Insurance Company, as the result of high grades attained in the examinations of the Insurance Institute of America's fire courses conducted under the auspices of the Fire Underwriters Association of the Pacific.

To encourage the growth of this educational work, Mr. Levison established an annual award two years ago, under which the student attaining the highest grade in each of the three divisions in the Institute's syllabus of fire insurance would receive prizes.

Richard T. Lawrence, of Fireman's Fund head office staff, with a mark of 91 in the Intermediate Division, received first prize of \$50; **Miss Hussey**, of the Carl N. Corwin office, with a mark of 88½ in the Junior Division, received \$25; **Charles A. Mueller**, also of Fireman's Fund and **Ralph V. Vincent** of Campbell, O'Kell & Company, tied with a mark of 86½ in the Senior Division and received \$25 each.

Joel McCrea, Hollywood star, is building a 65-foot diesel power boat at San Pedro. **Jack Nuttall**, another celebrity, recently took delivery of his new schooner yacht *Loafer* from the yard of the San Diego Marine Construction Company. The schooner is of staysail type and 52 feet in length. Her auxiliary power will be furnished by two 25 h.p. Universal engines.

E. J. Brown has been named manager of the Panama Agency Company with headquarters in Cristobal. The promotion of Mr. Brown, who has served as special representative of the Grace Line in Central America for eight years was announced by

Edward T. Ford, president of the Panama Mail. Retiring director of the San Salvador post is **Enrique Sol. Frank Rebstock**, twenty years in the Grace service, who will take up his residence in San Francisco.

R. S. Wintermute, who is the newly appointed executive head of General Steamship Corporation in the Seattle district, states that the shipping company's new plan whereby all operations in the Pacific Northwest will be under the supervision of a vice-president with headquarters in Seattle went into effect on June 16. **R. K. Brown, Jr.** is district manager at Seattle.

● New Deal for Skippers

Robert Jose, purser of the Monterey, might well claim the distinction of being the first man other than the captain of a ship to enter his vessel. It happened at the Los Angeles customs house on July 16. The new act of Congress permits pursers and deck officers to act for the master and **Captain Andrew G. Townsend** delegated Purser Jose to do the honors.

Perry S. Newcomb, Los Angeles manager for agents *Dodwell and Company*, says that the Fruit Express Line reefer ship *Oregon Express* has been definitely scheduled to sail from San Francisco July 28 and from Los Angeles Harbor on July 31. She leaves for Glasgow, London and Liverpool.

● Down in Los Angeles

Clarence H. Matson, manager of the Chamber of Commerce harbor and foreign department, announces the appointment of **E. F. McDonough** as foreign trade commissioner. He will take the place of **J. D. Larsen** who goes to San Diego to manage that fair city's world fair.

Another newly appointed Los Angeles harbor commissioner is **Emile A. Pozzo**, a pioneer in Los Angeles contracting business.

Remember the drawbridge over the entrance to Long Beach Harbor? It's to be dismantled. **Merritt, Chapman & Scott** will remove the substructure and dredge the harbor entrance to the full channel width of 175 yards, improving quite materially the port's gateway.

The Longshoremen's Strike

(Continued from Page 258)

United Licensed Officers Association

- b. Each of the following unions claim to represent the Licensed Engineers:

Marine Engineers Beneficial Association

United Licensed Officers Association

- c. Each of the following claim to represent the Unlicensed Personnel:

International Seamen's Union

Marine Workers Industrial Union

● Recognition Not an Issue

No question of union recognition or collective bargaining is involved. The companies are ready and willing to deal collectively with the representatives of their employees. If their employees select any of the named unions as their representatives, the companies will gladly recognize the unions as such representatives and deal with them.

But the first and essential step is for the unions to show their credentials. The steamship companies will cooperate in the elections necessary to establish the facts of representation, but their employees cannot be deprived of the right of freely selecting whom they desire to represent

them. This is a right accorded by law and is a matter of fair play and justice.

● Marine Demands

In this preliminary statement time does not permit a lengthy answer to some of the statements and charges made before your Board. It is putting the cart before the horse to talk about demands before the unions present proof that they represent the employees.

However, I do not wish by my failure to reply specifically to the statements made before you, to give the impression that the claims are true. In most material respects they do not accord with the facts. This we will demonstrate when the proper time comes. Of course the pursuit of the sea is one that requires the courage and endurance of men. Bad weather and hours that are dictated by the exigencies of nature, have always been and always will be part of the day's work of the men who follow the sea. But I believe you will agree when you have heard the facts that the men are fairly treated. The companies are ready and willing to meet with the representatives of the employees at any time to discuss any grievances the men may have, but they do rightly insist that they deal

with representatives chosen by the employees.

● Conclusion

I believe our conduct since the beginning of this controversy demonstrates our willingness to do everything that is fair and just to bring about a settlement. Three agreements have been made settling the longshoremen's strike. They have all been repudiated by the men. We ask this Board find the facts, and particularly that the June 16 agreements are a just and honorable settlement.

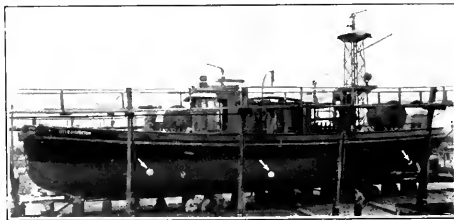
1. Recognizes the union.
2. Provides for collective bargaining.
3. Provides for arbitration of wages.
4. Provides a hiring hall jointly operated by the men and the employers and the spreading of work.

We are willing to have your Board supervise the hiring hall to insure that it is fairly operated.

We recognize that the public is directly interested in this controversy and we have always endeavored by our conduct to demonstrate that we recognize our responsibility to the public. We again state our desire to cooperate with this Board in the performance of its arduous duties and offer it all information and every facility at our command to meet end that the present controversy may be brought to a prompt and just conclusion.

Fire Boat "CITY OF GALVESTON" Saved by 6 Marine Electrolysis Eliminators

ELECTROLYSIS
CAN BE
CURED
Costly Repair Bills
or
Inexpensive Cores???



Fire Boat CITY OF GALVESTON
Note the Method of Fitting Eliminators to Hull.

Hundreds of sets installed on wood and steel vessels of every type.

Have Your Problem Analyzed by Our Engineering Staff.

Marine Electrolysis Eliminator Corporation

Arlay Cheadle, President.

William Calvert, Secy.-Treas.

19 COLMAN DOCK, SEATTLE, WASH.

Gulf States Headquarters: Gulf Engineering Service and Specialty Company . . . Galveston, Texas . . . New Orleans, La.

Pacific Marine Review

SEPTEMBER 1934



Official Organ
PACIFIC AMERICAN
STEAMSHIP ASSOCIATION



Official Organ
SHIPOWNERS ASSOCIATION
OF THE PACIFIC COAST



Entitled to Protection

THE general policy of the United States is that of giving legitimate aid and encouragement to her industries. A survey for the year 1930 shows that the sugar tariff cost the American people \$300,000,000 for that single year. Tobacco growers were protected to the extent of \$440,000,000 while cotton manufacturers derived benefits totaling \$240,000,000. The silk goods people benefited in the amount of \$225,000,000, leather goods were boomed more than \$100,000,000 and chemicals brought in the tidy sum of \$120,000,000 above the unprotected price. It remained for the steel industry to eclipse all others as premier beneficiary of the nation's tariff policy. American consumers in 1930 paid this industry more than \$1,000,000,000 above the free trade price.

Yet it is a remarkable thing that many Americans, who favor protection for our basic land industries, are adverse or indifferent to the extension of similar aid to our ships in foreign trade.

American tariffs increase the cost of ship construction and operation through a general elevation of the price structure. Our overseas shipping has no home market. It is forced to produce according to the American standard of living and it must sell in competition with ships built and operated by low-wage countries.

If protection is the acknowledged course of this nation why should the ship be left to perform its economic services overseas without protection?

Surely the \$20,000,000 a year now paid to American shipping in the form of mail contracts is not without precedent and is ridiculously small compared with the huge amounts paid by the domestic consumer to other basic industries.

NEW YORK SHIPBUILDING CORPORATION

Main Office and Yard:
CAMDEN, N. J.

New York Office:
420 LEXINGTON AVENUE

Pacific Marine Review

The National Magazine of Shipping

VOLUME XXXI

SEPTEMBER, 1934

NUMBER 9

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Our cover shows the beautiful Oceanic liner S.S. Monterey in a charming tropical setting, Pago Pago Harbor, American Samoa. Note the outrigger dugout canoe on the fore shore. Photo by Alfred T. Palmer, Matson Line Cruise Photographer.

Official Organ
Pacific American
Steamship Association

James S. Hines
President and Publisher

Bernard N. De Rochie
Vice-Pres. and Manager

500 Sansome Street, San Francisco
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of the Pacific Coast

Alexander J. Dickie
Editor

M. J. Suitor
Asst. Editor

Chas. F. A. Mann, Northwestern Representative, 1110 Puget Sound Bank Bldg., Tacoma, Washington

In New York copies of Pacific Marine Review can be purchased at the news stand of I. Goldberg, 42 Broadway; and the news stand of Jacob Fuchs at 17 Battery Place at 25c per copy.

A. H. BULL STEAMSHIP COMPANY

selects Mackay Radio Equipment for Two New Freighters!



*No ship need sail under the bandicap of
old or obsolete Radio Equipment* *Mackay Radio*

S. S. Angelina, built by Newport News Shipbuilding and Drydock Company for the A. H. Bull Steamship Company. Like her sister ship, the S. S. Manuela, she is Mackay Radio equipped throughout.

LIKE the palatial "Manhattan" and "Washington"...the great fleet of the American Export Line...like hundreds of transoceanic and coastwise craft...the two new freighters of the A. H. Bull Steamship Co., the "Angelina" and the "Manuela" are completely Mackay Radio equipped. And that means that their equipment is as *new* as the last tick of their chronometers. Mackay Radio has no old equipment for sale or for lease!

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erated by Mackay Radio becomes part of a giant communication chain that stretches around the world. It includes not only Mackay Radio with its eight powerful and strategically located radio stations but Postal Telegraph, All America Cables, Commercial Cables...the International System of coordinated communication facilities.

A Mackay Radio representative will be glad to tell you more about Mackay Radio Marine Service. Just

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New York City, 67 Broad Street • San Francisco, 22 Battery Street • New Orleans, 828 Gravier Street

THE INTERNATIONAL SYSTEM

Mackay Radio

Commercial
Cables



All America
Cables

Postal Telegraph



Kolster Radio Direction Finder, built and installed by Mackay Radio & Telegraph Co. on board the S. S. Angelina.



The radio room of the S. S. Angelina. Her equipment includes type 104-108 combination intermediate and short wave transmitter with type 105 intermediate and long wave receiver and type 104 short wave receiver. Main transmitter may be operated independently of the ship's electric power plant.

communicate with Mackay Radio headquarters or any branch office and a representative will give you full information.

Pacific Marine Review

VOLUME XXXI

SEPTEMBER, 1934

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Editorial Comment » » »

Agriculture and The Merchant Marine

AMONG the recent critics of America's merchant marine is the Secretary of Agriculture, who puts forward the rather hackneyed but always plausible argument that we as a nation need exports more than we need shipping, and so we should pay other nations to carry our exports so that they would have more dollars to buy more exports from us.

This is the same argument that pulled us into a false sense of security and drove our flag off the ocean trade routes of the world in the years following the civil war and kept that flag off those routes until we were rudely awakened to our folly in 1914 by the World War. It would hardly be worth considering except that it comes from the Secretary of Agriculture just at the time that the Postmaster General is beginning his investigation into Ocean Mail Contracts.

The whole picture of the Ocean Cargo Carrying industry has changed completely since 1914. Prior to that time the great bulk of American exports were carried in British ships. Today the merchant marines of Japan, France, Italy, Denmark, Sweden, Holland, Norway, and Germany are all competing with Great Britain and with us for a larger share in our carrying trade.

If the great American Middle West decides to take all subsidy away from our ships it will mean that the dollars now spent in American ports for paying salaries and wages to

American shipyard mechanics, seamen, ship's officers, shipping line executives, clerks, and many other classes will be paid to the same classes in foreign ports. The American agriculturist must therefore choose between having for customers a number of American families with American standards of living, or an approximately equal number of European or Japanese families with a much lower material standard of living. There would seem to be only one wise choice.

We would call the attention of Secretary Wallace and of those who may have a leaning toward the same economic philosophy to the recent action of the British Parliament in making available \$10,000,000.00 for annual subsidies for the tramp class of cargo carriers. The American cargo carrier in tramp services is almost non-existent, because that class of service is not subsidized by the Federal government. Much of the seasonal movement of America's export of agricultural crops is carried by tramp class cargo carriers, and these are now mainly foreign flag vessels. With a British subsidy on such services, undoubtedly the seasonal movements will be practically 100 per cent under foreign flags.

We have got to realize that our necessity for exports is the greatest argument for maintaining an adequate American flag merchant marine on the sea. These ships develop new markets, initiate new exchange arrangements, generate friendly contact between traders and often build up mutually profitable business.

We as a nation have no monopoly on any angle of international business. There is nothing that we produce for export which cannot be

produced elsewhere equally well, and perhaps at less cost. We cannot sit quietly at home and wait for the business to come our way. We must go out and get it. The only way to go across the sea economically with our trading goods is to go in ships. The best way is to go in our own ships, and America seeks the best.

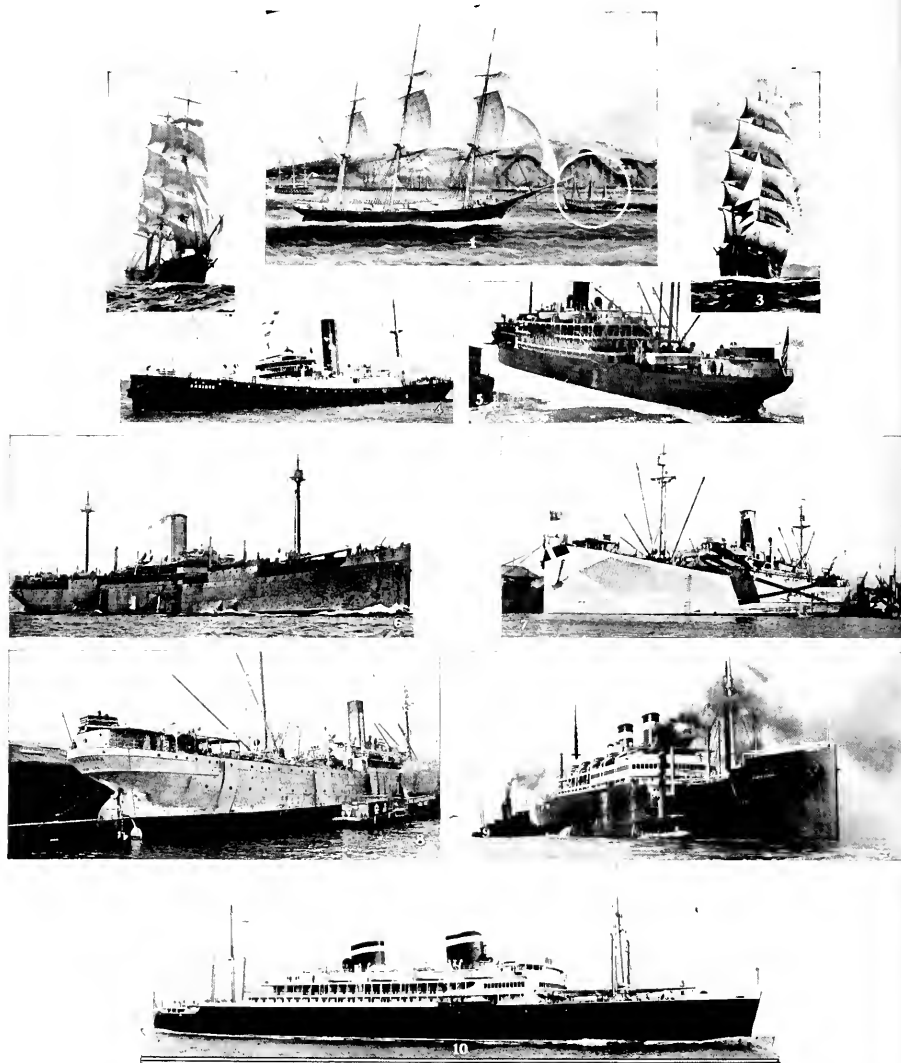
Ocean Mail Contract Investigation

THE American Merchant Marine is now confronted with another investigation. The Post Office Department has been instructed by executive order to make enquiry into all the Ocean Mail Contracts now in force and to make recommendations "relative to their modification or cancellation". The Independent Offices Appropriation Act grants the President authority to modify or cancel any government contract.

The great majority of the many investigations of the merchant marine made by Congress or by Federal Bureaus have been fruitless of any practical results. There must be on file in various archives of Washington a stupendous amount of fact and fancy pertaining to the American Merchant Marine. It has been investigated on an average of every two years since 1868, and probably was investigated often enough before that date. It is most remarkable therefore that so few people at Washington seem to know anything about the subject. Indeed, practically the same questions are asked in each investigation.

This new enquiry is to be differ-

Evolution of the Grace Line



(Courtesy of Grace Line)

(1) Bryce-Grace store-ship off the Chinchas in the fifties. (2) and (3) Main sky sail-yard ships M. P. Grace and W. R. Grace. (4) S. S. Cacique which prior to the Canal's completion served South America's west coast via Magellan's Straits. (5) S. S. Santa Ana, first passenger service between New York and South America's west coast via the Panama Canal. (6) freighter S. S. Santa Rosa while in the Government's transport service during the war. (7) the old Santa Clara also in war paint. (8) the old Santa Barbara in the Governmental service. (9) the new Santa Clara, the first passenger and cargo ship built under the Marine Act of 1928 and (10) S.S. Santa Rosa, one of the four crack vessels built under the same legislation during 1932.

nt. This is to be, not a congressional investigation, but a departmental affair. Special officers of the Post Office Department are to intensively study each Ocean Mail contractor and find out whether that contractor is entitled to less or more or any mail compensation subsidy. It will be a job for the auditors, civil service rather than political. This being the case, the American shipping industry may be spared much ridiculous front page publicity. We use the word may advisedly. Recently published statements by members of the 'brain trust' in other federal departments would indicate that certain powerful factors in the political life at Washington regard an American flag overseas merchant marine as uneconomic and unnecessary.

Intercoastal Refrigerator Ships

The establishment of a line of intercoastal refrigerative ships to carry perishable products from Pacific Coast ports to Atlantic ports is one step nearer accomplishment with the application for a Shipping Board loan for building such ships. The scheme on paper looks very attractive. A small fraction of the annual rail movement of Pacific Coast perishables would take care of full cargoes eastward bound on a fleet of such ships. The present capacity in refrigeration space on intercoastal cargo and passenger liners is booked to the limit. The opening of such ports as Stockton brings the ship a little closer to the source of its cargo. The volume of shipment of perishables from Pacific Coast states is growing rapidly.

Of course, short haul refrigerative rail or truck transport to or from pier refrigerative storage is comparatively expensive, and the cost of handling fruit packages under present methods of refrigerative stowage is very high. The real problem is not on the ship. The ship beyond question can carry the perishables at less cost, and deliver them in better condition, than can the railroad. The problem is one of reducing the cost and the depreciation of the perishables during the processes of collecting and distributing the cargo.

Panama Canal Tolls

Legislation affecting a uniform system of tolls at the Panama Canal barely missed passage at the recent session of Congress. The passage of such legislation is highly desirable, provided it brings about a general reduction in the charges which are now considerably higher than is warranted by the cost of the **Ship Canal**.

The proposed bill to make a uniform system would have meant a raise in charges, and was therefore opposed by American shipowners. The Federal Coordinator of Transportation should make a study of Panama Canal costs and tolls, and make proper recommendations to the President, so that the merchant shipping of the world will bear only their legitimate share of the cost of canal operation.

Twenty-Five Years Ago

PACIFIC MARINE REVIEW

First Established and Only

Exclusively Marine Paper Published
on the Pacific Coast

Seattle, Wash., U.S.A.

Volume VI. SEPT. 1909 No. 9

Western Gas Engine Company, Seattle, were installing two of their four-cylinder open crank marine heavy duty gas engines on the 83-ton schooner Carrier Dove.

Norwegian steamer Hercules had just landed 5500 tons of steel rails at Prince Rupert, B.C.—the first ocean-going steamer to enter that port.

Contract had been let for the excavation of a dry cut between Lakes Washington and Union as a start on the right-of-way of the Lake Washington Canal.

Death of E. H. Harriman "uncrowned king of the railroad world of the United States, and dominating factor in its finances" was the topic of the leading editorial.

The Ballin vertical tube single drum sectional watertube boiler was described and illustrated.

Announcement was made of the impending launch and christening at Newport News of the steamer Wilhelmina, building there for the Matson Navigation Company. Launching took place September 18, 1909, and first sailing from San Francisco to Honolulu in February, 1910.

The Monticello Steamship Company of San Francisco had ordered from the Union Iron Works a new vessel to cost about \$300,000.00 and to be used on their San Francisco-Vallejo run. The Associated Oil Company were building at the Newport News yards a new tanker, the J. A. Chanslor, to carry approximately 52,000 barrels and have a speed of 11½ knots.

The big wooden steam schooner, Klamath, building for the McCormick Lumber Company at the Bendixsen Shipyards was to be ready for launching about the middle of October.

The new United States revenue cutter Tahoma had recently arrived at Puget Sound to replace the U.S. R.C. Grant. Her voyage out from Baltimore was very interesting in view of present conditions. The following account is by J. H. Quinan of the Tahoma.

"Left Baltimore April 17th, proceeded to the town of St. Michaels, in the Azores, arriving there April 28th. Received cablegram to proceed to Gibraltar, which port was reached May 1st. Thence to Malta for coal, and from there was ordered to protect the American interests at Alexandretta, Turkey, during the Turkish uprising and massacres. Arrived at Alexandretta May 12th, being the first American vessel to reach there. Left there May 25th and proceeded to Port Said. Left there June 3rd for Aden through Red Sea, thence to Colombo, Ceylon, Singapore, to Manila and Yokohama, leaving the last port July 31st, and arriving at the Island of Unalaska August 11th, leaving the 15th for Port Townsend, and arriving there August 23rd.

The total distance traversed was 18,550 miles. An average speed of 10 knots was made, although when ordered from Gibraltar to Alexandretta, proceeded at full speed."

... The Stake of America in Foreign Trade

By James D. Mooney

*Vice-President,
General Motors Corporation*

In recent speech, Mr. Harry Tipper, executive vice-president, American Manufacturers' Export Association, spoke about the many different kinds of medicine that our well-meaning friends suggest to us when we have a cold. We certainly do have a wide variety of cures to choose from, and some of the new ones are even worse than the cold itself. As a matter of hard, practical experience, we usually find that the old-fashioned remedies are the only ones that are safe and reliable.

We have been struggling along with our economic problems here in the United States for the past four or five years, and we have been offered about every sort of patent medicine and panacea that the volunteer doctors could think of to get us up out of our beds and walking around again. It is a very happy circumstance, I think, that President Roosevelt is now urging that we try the old-fashioned remedy that our forefathers used so long and so successfully; that we take a large dose of foreign trade to cure our economic chills and fever before they turn into pneumonia or something worse.

The best doctors of medicine will confirm to you today that the things our grandmothers did to cure a cold were the right and sensible things to do. The soundest economists will tell you that the things our grandfathers did to expand their business and to improve their standards of living were also the right and sensible things. They planted cotton and tobacco and foodstuffs beyond their own immediate needs for consumption, and they built machinery and works of handicraft a little better

than anybody else; and they launched ships and went out into the far corners of the world to swap the surpluses they had created for the surpluses of other nations that they could use themselves.

● America's Real Greatness

Those were the days of the clipper ships and the shrewd Yankee traders; they were the days that saw the birth of America's real greatness. Our grandfathers and great-grandfathers were practical economists in every sense of the word. They realized that higher standards of living come from an increasing abundance of goods. They worked and produced and traded among themselves; and then, as their surpluses and their desires increased side by side, they went out boldly and courageously and traded with the rest of the world.

It was true in the days of our forefathers, and it is just as true today, that there is only one way in which we can get for ourselves the necessities and the luxuries that the rest of the world is waiting to lay in our laps—and that is by shipping our own un-needed surpluses out to pay for them: cotton for silk, tobacco for coffee, copper for tin, oranges for bananas, petroleum for perfumes, cash registers for caviar, automobiles for rubber and cork and tungsten. We need these things that the rest of the world can give us, and I'll stake my whole case for imports on the humble banana alone.

There is only one way we can get these things that the world has to offer us, and it is a matter of simple horse-sense that better economic conditions and a higher standard of

living can come only from an increased swapping of the surpluses on both sides of these international fences. Our forefathers realized this and under the sort of leadership that Secretary Hull is giving us in Washington today, we are beginning to learn how to realize it ourselves. There is no such thing as national self-sufficiency in a world that is so lavishly supplied with its diversified gifts.

There is another view of this foreign-trade picture that ought to make us all very proud of our forefathers who so wisely launched us into this business of foreign trade. On the trips I make through various parts of the world, I still get something of a thrill when I see an American product being put to everyday use in some remote country: bales of cotton fresh from New Orleans on the docks of Rio de Janeiro; an ancient vintage automobile with a familiar label, carrying coconuts in the Belgian Congo; an American typewriter in a glittering show-window on the Champs-Élysées in Paris; our standard brands of cigarettes neatly stacked on a counter in Shanghai.

● How It Works.

At home these products of American labor and ingenuity are taken entirely for granted; abroad, as visible evidences of America's enterprise and vitality they take on a new significance. It seems that we send out everything from chewing gum to locomotives, and I think I get an even bigger kick when I see these products of America being used in overseas lands, out of realization of the fact that it is these things we send out that serve to pay for the things we receive, and enrich ourselves with back here at home.

Our ancestors started it all when they first conceived the sound idea that America was a part of the world and entitled to share in its bounty. They laid a firm foundation for it

foreign trade, and they prospered and grew as this trade increased. Nobody can tell us with a straight face that our forefathers were wrong in what they did, and that they would have been better off if they had built a wall around the country and stayed huddling within it. Nor can anybody tell us with a straight face that we ourselves would be better off today if we shut the rest of the world off from us and tried to live on our own resources alone.

Our forefathers were bold men, and they went out to the corners of the earth for what they wanted, and got it; and the country grew and flourished with them. It is a very hopeful sign that we are getting bolder today, and I do not hesitate to tell you that if we are bold enough in this whole matter of foreign trade, we shall grow and prosper, too. We are lagging behind at the moment, for a great many foreign nations have seized the opportunity to make trading arrangements among themselves which have resulted already in a substantial increase in their exchange of goods, while we have sat on the sidelines twiddling our thumbs and waiting for some miracle to happen. Also, as Mr. Peek has so ably pointed out in his letter to the President, we have very foolishly tried for a number of years to sell our goods abroad without taking anything real or tangible in exchange for them. Despite those recent lapses, however, I still feel that we have enough of our traditional Yankee shrewdness left in our make-ups to guarantee that we shall get a full and profitable share of world trade if we really set out to get it.

● See The Practical Side

If we can only learn to look at this question of foreign trade in the practical light of all that has happened in the past, we can safely put theorizing and hair-splitting aside—we can convince ourselves, out of our own rich experience, that we are prosperous when foreign trade is healthy and vigorous, and that we are in a very bad way indeed when foreign trade is sick and dead.

I can sum up this case for foreign trade very briefly as follows:

1. America is traditionally a na-

tion of foreign traders. American economic history is a story of surpluses of wheat and cotton and tobacco and copper and oil traded for coffee and rubber and tin and bananas. Beginning with Colonial days, and ever since, we have been prosperous when foreign trade was vigorous; we have been miserable with unemployment when foreign trade failed us.

2. We can produce more of certain things here in America than we need, and we can exchange these surpluses for certain other things that we can use to advantage.

3. More than anybody else in the country, our farmers and our cotton planters and our tobacco growers require an export outlet for their surpluses in order to become prosperous.

Radio Beacon Experience in Approaching Lightships

The following interesting letter, bearing on the use of radiobeacons, has been received from the master of the steamer City of Birmingham, under date of May 31, 1934:

"We rely on radiobeacons more than was anticipated when first installed. During the past winter, the supreme test was made with gratifying results, as we experienced more vapor and snow, always accompanied with high wind. On our route—coastwise, Savannah, Georgia, to New York and to Boston, Massachusetts, both through Long Island Sound and outside—there are beacons on lightships where the cross bearings are impossible to obtain; in that case I have found the signal strength of the beacon a warning of our proximity, where there is doubt as to the actual distance away, not that we rely wholly on that. There are no waters so congested but that the beacon can be kept on the side on which the vessel intends to pass it.

"I have passed light vessels depending entirely on the radiobeacon; the sound fog signals were not heard until after we were some distance past. A condition of this kind naturally requires slow speed and every precaution. It further requires one skilled in the use of the direction finder, and unless the operators get their training, and make tests during clear weather, they are apt to find it difficult to obtain results during thick weather.

"I may add that during the past winter ice conditions and fog in the Long Island Sound made navigation hazardous. Aids to navigation were carried away, with the exception of

land lighthouses, and those where radiobeacons were installed gave us wonderful results, many times to such an extent that, without this aid we would have been compelled to stop, and probably drift with the ice until some aid could be made; it is very necessary on these stations to pass at a given distance off. This is just as important as passing light vessels. The means of finding our distance away, were mostly by getting the beacon station on the bow; our results were very satisfactory."

Other interesting comments have also been received referring to the cautionary notice which was published; in one it is urged that vessels when proceeding on radio bearings should not head within three degrees of any lightship, adding "there are doubtless some locations where it is necessary to head directly for a lightvessel; in those cases proceed slowly enough to avoid collision, as in the case of approaching shore stations." The master of the steamer Walter A. Luckenbach states that "on approaching Nantucket Lightvessel in fog from a northerly or easterly direction, I have found that as soon as speed is reduced below 15 knots, when about abreast of South Channel, the tidal conditions cause considerable set which, sometimes, is augmented by southerly or northeasterly winds to a velocity as much as 2½ knots." He mentions that on various occasions he has been set off from 6 to 7 degrees at an approximate distance of 15 miles, vessel logging about 14 knots, and that this necessitates a constant check by radio cross bearings.

[Lighthouse Service Bulletin]

..... *New*

Coast Guard Patrol Cutters

*Three Steel Vessels Building at Lake Union Dry Dock
and Machine Works, Seattle*

The new 165-foot twin screw diesel driven patrol boats for the Coast Guard service, three of which are now building at the Lake Union Dry Dock and Machine Works, Seattle, present some interesting and novel features of design and construction. These three vessels are named Atalanta, Ariadne, and Cyane, and will be completed in that order. Atalanta was launched June 16, Ariadne on July 21, and Cyane August 25. They are scheduled for delivery on September 1, October 1, and November 1, respectively.

The principal characteristics of these ships are:

Length overall165 ft., 0 in.
Length between perpendiculars160 feet
Beam molded at water line24 ft., 1 in.
Beam molded at main deck25 ft., 3 in.
Depth molded at main deck

.....13 ft., 2 in.
Mean draft ready for sea.....7 ft., 6 in.

Maximum draft ready for sea8 ft., 6 in.
Displacement337 tons
Power on Twin Screws.....

.....1340 S. H. P.
Speed16 knots
Full capacity8096 gal.
Fresh water capacity3460 gal.
Drinking water capacity,1700 gal.

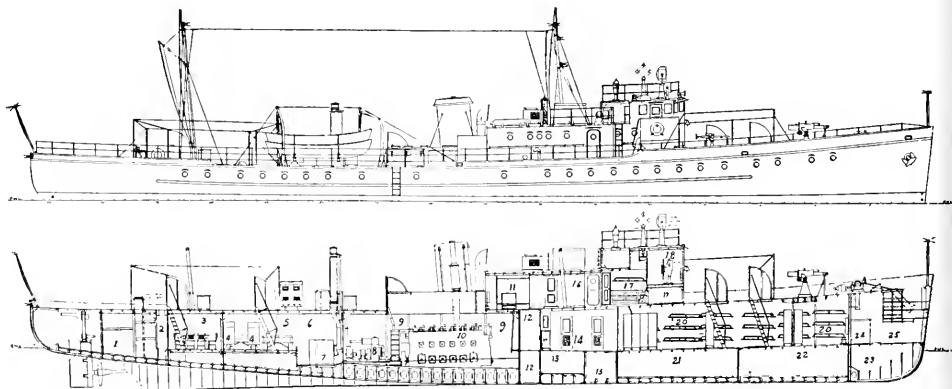
Cruising radius about 4000 miles.

Final lines of the hulls were designed after testing several models in the model towing basin at Washington, and the result is an easy sea boat of very good propulsive efficiency. In order to combine light weight with sturdy construction, bulb angles were used for all frames, deck beams, and bulk head stiffeners, and considerable study was devoted to the best distribution of material and uniformly absorbing

stress.

Watertight subdivision is maintained by six water tight and two oil tight bulkheads dividing the ship into nine compartments. Below the main deck there is a berth deck forward of the fuel tank, and aft of the engine room space. The main deck is steel plated throughout. The berth deck is of wood laid on steel beams except the galley, where it is of steel covered with aluminum tile, and over the fresh water tanks and the magazine where it is steel plated.

The inboard profile herewith shows the arrangement of space below decks. Starting at the stem we have in the 'tween decks, paint and oil store room, chain locker, crew's bathing space, and officer's staterooms; below the berth deck, the forepeak, fore hold, main hold, fresh water tank, and magazine. Aft of the above spaces and reaching from ship's bottom to main deck, is the fuel oil tank, then the engine and



Inboard and outboard profiles of the 165 foot coast guard patrol boats, three of which are now being completed at Lake Union Dry Dock and Machine Works, Seattle.

machinery spaces, and the shaft alley. On the berth deck over the shaft alleys are located the galley, crew's mess, officer's mess, ship's office, drinking water tank, hawser coveage, and steering gear.

An interesting and novel feature of this hull is the design of the cast steel stern frame which includes two rudder posts. These posts are streamlined and carry the rudder gudgeons on their after side, and an outboard propeller shaft bearing on their forward side. The propeller shaft is designed so that a short projection of the shaft on the after end of the propeller engages this bearing. This construction eliminates the outboard strut, with its eddy losses.

The power plant comprises two Winton 6-cylinder valve in the head, solid injection, four cycle, directly reversible diesels, each developing 370 shaft horsepower at 450 revolutions per minute, and each directly connected to a Hyde 3-bladed, manganese bronze propeller, of 62-inch diameter, and 53-inch pitch. For lighting the ship and for electric auxiliary power there are three Winton 3-cylinder solid-injection, four cycle, diesel engines, each directly connected to a 15-kilowatt Westinghouse alternating current generator.

Auxiliary machinery and equipment include a 10-horsepower bilge and fire pump by the Warren Steam Pump Company, Dayton Pump Company 5-horsepower fresh water pump and 5-horsepower sanitary pump; Winton air tanks and mufflers; a fuel oil transfer pump, two coolers, and two filters for lubricating oil by Winton; two centrifugal oil purifiers—one for lubricating oil and one for fuel oil; an Ingersoll-Rand air compressor of forty cubic feet per minute capacity; an Allan Cunningham electric windlass; a Mendel Electric Company switchboard; and a Kohler emergency generating set. Goodrich Cutlass Rubber bearings are used on the propeller shaft.

The twin rudders are controlled by a Sperry electric-hand steering gear. This gear is so designed that if the electric motor is cut out or the power fails the quartermaster simply continues to steer with the hand wheel, which is always engaged.

W. C. Nickum and staff of Seattle



U. S. Coast Guard Patrol ships M.S. Daphne, M.S. Aurora, M.S. Hermes, M.S. Perseus, and M.S. Calypso in Miraflores Lock, Panama Canal.

are consulting naval architects to the builders, and prepared all detail drawings for these three cutters.

Seven cutters of the same class as those described above were built at the Bath Iron Works in 1932. Five of these cutters have recently been placed on Pacific Coast stations of the Coast Guard and made the trip from New York to San Diego together and under their own power. This voyage of approximately 5000 nautical miles gave them a splendid opportunity to show their mettle and they came through in very fine shape. The fleet of patrol boats with their commanding officers comprised the Daphne, flag ship, Lieutenant Commander F. M. Meals; the Aurora, Lieutenant F. C. Pollard; the Hermes, Lieutenant Commander C. W. Thomas; the Perseus, Lieutenant Commander J. H. Byrd and the Calypso, Lieutenant A. G. Morrill.

Cruising speeds from four to fourteen miles an hour were maintained at various portions of the trip. Twelve hours of rough going was encountered crossing the Gulf Stream, some choppy seas crossing the Caribbean, and a real gale on the Gulf of Tehantapac. When cruising at 12 miles an hour the consumption of diesel fuel was 32 gallons an hour for all purposes. Shell Diesel fuel was bunkered at New York, Standard Diesel fuel at Panama, and Mexican Diesel fuel at Manzanillo.

The only repair necessary after

this voyage of 5000 miles with five ships was the renewal of a lignum vitae bushing on one of the auxiliaries of one of the ships at an expense of \$10.00.

On reaching the Pacific Coast, the M.S. Perseus and the M.S. Calypso were assigned to San Diego, the M.S. Aurora and the M.S. Hermes to Los Angeles Harbor, and the M.S. Daphne to San Francisco Bay. Representatives of Pacific Marine Review recently visited the Daphne at the Pacific Division Coast Guard base at Oakland, California, and on the official records found the following interesting performance data for that ship.

On the trip from New York to San Francisco during March and February, 1934, the total distance logged was 5494.4 nautical miles, and the time underway was 523 hours, so that the average speed was 10.5 knots. Total fuel consumed was 14,576 gallons of diesel oil, 1080 gallons of which was used to operate generating sets, and 13,506 gallons on the main engines. A total of 171 gallons of lubricating oil was used on the trip, of which 131 gallons went to main engines, and 40 gallons to auxiliaries.

Since the date of her commission, February 12, 1932, M.S. Daphne has cruised 53,859 nautical miles with no expenditure for repairs to her main engines other than routine renewals of packing and gaskets.

In Our Merchant Marine

I. Distress Communications and Navigational Aids

By Captain S. C. Hooper

Director Naval Communications, U. S. Navy

Communication is defined as a transfer of ideas from one person to another, regardless of the location of the two parties involved, or the means by which the transfer is effected. Since prehistoric times, ships have utilized the seas for the same purpose as we do today, but until the advent of the twentieth century the only means of communication between ship and ship or between ship and shore, was obtained when within visual touch using the voice, smoke, whistles, flares, rockets, flags, or hoisted shapes. Otherwise, every vessel was cut off from the rest of the world by an apparently unbridgeable extent of space, preventing the exchange of ideas, or communication, which we find so indispensable now.

The desirability of effecting a means of communicating with ships at sea was so obvious that after the first stages of radio development were successful, the new system was immediately and wholly utilized for maritime communication purposes. Although recognized as a magnificent achievement, few visualized, during those first few years of radio, how rapid would be its future development; how many useful applications would be discovered; how radio communication would become an integral part of the world's routine life. Although radio progress has resulted in the formulation of a distinct and quite complicated technical process, neither the general public nor the seafarer looks upon radio any longer as a mystical novelty. They see it now only as a commonplace established service, and are rapidly forgetting the days when maritime communication was considered a fantastic dream.

The value of radio communication is peculiarly realized by the seaman, since it furnishes him with the desired link to man's habitat and base, the shore. It also assists him in navigating the seas and in bringing assistance when in distress. Today, there is no scientific reason for any merchant ship, large or small, in any part of the world, to be denied the invaluable contact with the land afforded by radio.

Naturally, the first radio installations were crude affairs and could be relied upon only over short distances, but it was soon discovered that better equipment was possible and that the propagation characteristics of the various radio waves or frequencies on which signals were transmitted were decidedly different. The latter discovery was of far-reaching consequences, resulting in the first reliable long distance radio communication on what is now known as low frequency — between 10 and 100 kilocycles (30,000 and 3,000 meters). Transmitting ranges were also greatly increased on other frequencies, now known as medium frequencies, but it was not until comparatively recent years that effective transmission was accomplished on frequencies above 4,000 kilocycles, which, with suitable power and choice of frequency, can effect reliable communication to almost any point on the surface of the earth.

It is superfluous to say that radio is with us as a permanent fixture. Though technical methods and applications may vary, the process of exchanging ideas between one location and another, using means involving no actual physical connection by wires or other man-made conveyors,

affords mankind one of its greatest boons. It is also obvious that the personnel of our merchant marine are well aware of the value of radio communication and will be thrown in contact with it more and more as developments progress. This fact calls for a certain amount of knowledge of radio communications on the part of merchant marine officers in order to fulfill their duties in an acceptable manner. It therefore appears desirable to explore further the applications of radio to the necessities of the merchant marine.

● Marine Radio

The indispensable aid which radio offers to ships at sea may be divided into the following components or phases:

- (1) Distress Communications.
- (2) Navigational Aids.
- (3) Commercial Communications.

Even if the radio could be used only in connection with distress communications, it would be of inestimable value. The addition of the other two components has afforded advantages to world-wide shipping which, twenty years ago, were never visioned. An outline of each of the services mentioned above will show exactly how radio assists our sea-borne commerce and citizens who travel by water.

● Distress Communications

This, the first of the components or phases of communications above, may be divided into the following parts:

- (a) Distress Signals.
- (b) Rescue Communications.

● Distress Signals

Nowadays, few persons would consider a sea voyage on a ship not equipped with radio transmitting and receiving apparatus. The number of lives which radio has saved at sea is not accurately known, but the average person throughout the world realizes fully what radio has done and is capable of doing for the mariner and traveler. International agree-

ent provides for the form, power, and frequency upon which a distress signal may be sent whenever a vessel finds herself with disaster imminent. Every ship equipped with radio and certain designated shore radio stations all over the world are required to stand a watch on the prescribed distress frequency of 500 kcs. (600 meters), either continuously or for definite periods during every hour of the day. All vessels or stations hearing a distress call are required to lend every possible assistance to the vessel in distress, if in a position to do so.

● Rescue Communications

The receipt of a distress call by a ship or shore radio station sets in motion a comprehensive rescue communication system. All communication on 500 kcs. (600 meters) must be reduced to a minimum necessary to properly conduct aid to the scene of distress. The vessel in distress, or another station designated by that ship must control all communications in the distress frequency. The shore radio direction-finder system is instantly mobilized to obtain bearings of the ship in distress, and plot her position for the benefit of ships proceeding to the rescue. Rescue ships obtain bearings with their own direction-finder if equipped with such device. Shore radio traffic stations advise other radio stations to remain silent if interference on the distress frequency is probable. The owners and the press are notified immediately. Every effort of radio is bent on successful rescue operations. Obviously, to be efficient, strict supervision of radio communications is imperative during such a trying period. Masters of ships must then exercise the greatest vigilance in their communications, and prevent radio operators from transmitting superfluous messages concerning the distress case. Examples in this connection will be cited later on to show the necessity of all officers knowing the underlying principles of radio and having in mind at all times a broad knowledge of the world's radio communication system.

● Navigational Aids

The value of radio under the second primary use, as an aid to navigation, cannot be emphasized too much.

Under this heading, there have been developed a number of devices or services which have become indispensable to the successful navigator.

The most important are:

- (1) Radio direction-finders (radio receivers with loop-directional-antennas)
- (2) Radiobeacons (fixed radio transmitters)
- (3) Synchronized radio-sound devices
- (4) Time signals (radio broadcast)
- (5) Fathometers (really sound devices)
- (6) Weather broadcasts, storm warnings, hydrographic broadcasts.

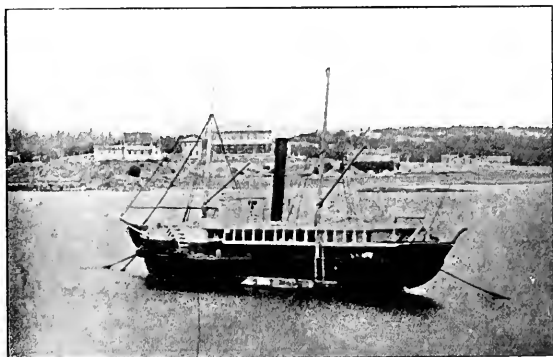
● Radio Direction-Finders

These devices are most valuable in obtaining accurate radio bearings on distant or nearby radio transmitting stations. With this device on board, a radio bearing of a radio transmitting station may be obtained, which should normally be accurate within two to four degrees, the accuracy dependent upon the length of time since calibration and whether conditions have changed in the ship. If the geographical position of the transmitting station be accurately known, as is normally the case if the transmitting station is on shore, a line of position may be laid down on the chart from the direction-finder. With simultaneous bearings of two or

more shore stations affording a suitable cut, crossed lines of position are obtained, establishing a fix, the accuracy of which is, of course, dependent upon the accuracy of the individual bearings. Two or more bearings of the same station (with the known run between) may also be used, just as in the case of visible terrestrial objects. It is considered advisable that the navigating officer of the ship take the radio bearings personally. Through a knowledge of the possibilities, peculiarities and limitations of the radio direction-finder as installed in his ship, the navigating officer may learn by experience the degree of reliance to be placed upon the various bearings obtained. For this reason the radio direction-finder should be installed on or near the bridge of the ship.

The value of the radio direction-finder in a fog is obvious, and it is likewise a valuable navigational check even in clear weather. An extensive automatic radiobeacon service has been established along many coasts of the world to afford suitable transmission for direction-finding by ships at sea. However, shore radio traffic stations transmitting on suitable frequencies may be used if their positions are accurately plotted on the chart.

The reverse of the process described above for ship-borne radio direction-finders is also used in the United States and other countries to aid ships in their navigation. A comprehensive system of radio direction-finder stations has been established



An interesting view of the S.S. Beaver, pioneer steamship of the Pacific North West. Before wireless was even a definite idea, from 1835 to 1888, the Beaver carried passengers and cargo along the coasts of Washington and British Columbia.

along the various coasts. In this system it may be considered that the "radio lighthouse" is the ship at sea, the radio direction-finder where the bearing is taken being on shore, whereas in the radiobeacon system discussed previously, the radio station on shore is the "radio lighthouse," the bearing being taken from the ship. In the case of the shore radio direction-finder system no direction-finder is required aboard the ship, which merely transmits certain prescribed radio signals which enable the shore direction-finder station to obtain a radio bearing, which is then transmitted back to the ship. Groups of direction-finder stations are located at the more important coastal entrances, thus affording simultaneous cross bearings or fixes to ships in these localities of heavy shipping. Radio bearings from shore direction-finder stations are normally accurate within one to two degrees. Their accuracy is affected, however, by "night effect" and by geographical features in certain sectors. Bearings of doubtful accuracy are so designated by the shore direction-finder station when they are transmitted to the ship requesting them. The radio direction-finder service of the United States, operated by the Navy, gives an average of 260,000 radio bearings per year, approximately nine-tenths of that number being furnished to the merchant marines of various nations.

A radio direction-finder requires an accurate calibration just as does a magnetic compass. For this reason and because of other readily-learned vagaries of the device, the deck officer should have a good working knowledge of its operation. He must be able to determine when a bearing has been improperly taken, or when errors may have been introduced due to changes of location of metal masses on deck or near the radio direction finder, such as movable booms, and stays, etc., when the securing position of such objects has been changed from that existing when the radio direction-finder was last calibrated. Broadcast antennas, rigged by the crew, and which are in inductive relationship to the loop of the radio direction-finder, are sometimes harmful and can set up errors to cause erroneous radiobearings to be received aboard the vessel.

Under the provisions of the Safety of Life at Sea Convention (London-

1929), passenger vessels of over 5000 gross tons will be required to have installed, radio direction-finders. Cargo vessels or those smaller than 5000 gross tons perhaps cannot be equipped for financial reasons, which indicates the necessity of maintaining shore radio direction-finders. But regardless of tonnage, the ship equipped with a radio direction-finder has a definite advantage over others, particularly if the deck officers and master become familiar with its operation, possibilities, and limitations, being thereby enabled to realize the desired results. Many advanced officers prefer to take their own radio bearings as previously recommended herein, rather than to rely upon the radio operator who probably possesses no practical knowledge of navigation. At present about 30 per cent of all seagoing United States merchant ships of 1600 tons or over are equipped with radio direction-finders, and this number is increasing each year.

● Radio Beacons

These devices are merely automatic radio transmitters, each sending out a distinctive signal on which radio bearings may be obtained by means of a radio direction-finder installed aboard ship. These radiobeacons are installed aboard light vessels or in lighthouses at suitable positions along coast lines, generally where navigation is difficult, and their use has been described under the radiobeacon system in connection with radio direction-finders. The radiobeacons are in continuous operation during foggy or inclement weather in the vicinity of the radiobeacon and at certain stated periods during clear weather, so that a vessel may receive a reliable check as to a fix when cloudy or overcast weather may have made celestial navigation unreliable. This system also provides the Master with advance information as to the weather ahead of the vessel. If the vessel is experiencing clear weather, and the radiobeacons ahead of the vessel are in continuous operation, this clearly indicates that fog or poor visibility can be expected.

As an example of the use of radiobeacons, one master of a large vessel has reported that he navigated his ship in a dense fog from Columbia River Lightship (Oregon), up the

coast of Washington, and through the Strait of Juan de Fuca, chiefly by use of his radio direction-finder and radiobeacons along the coast. When the fog finally lifted the vessel was abeam of Slip Point, as indicated by radio direction-finder bearings, thus saving a considerable amount of time.

On the other hand, the sinking of the Nantucket Lightship in May 1934 is a disaster which it appears might be laid to over-confidence in the accuracy of radio bearings taken by radio operators in the incoming ship, and which an intimate knowledge of the direction-finder, its possibilities, peculiarities and limitations, on the part of the officers, might have prevented. Definite conclusions in this case may not be drawn, however, until completion of the investigation of the incident, which, at the time of this writing, is still in progress.

● Time Signals

It is essential to the navigator that his chronometers be accurate with a known daily rate. In order to rate chronometers and check the accuracy, radio time signals are transmitted from various stations throughout the world, their accuracy depending upon the precision of the observatory clocks, which control them. In the United States, these signals are transmitted from certain Naval Radio Stations a number of stated times each day, with an accuracy greater than that needed for navigational purposes. The signals are transmitted simultaneously on low, medium, and high frequencies most cases, thus enabling the navigator to obtain a radio time tick practically every part of the world. In these modern days of radio the is no valid reason for unknown errors in chronometers, but the use of these signals does require a certain amount of knowledge on the part of the ship's officers concerning the location of time signal stations, times of transmission, characteristics of signals, and proper choice of frequencies for the locality in question.

● Fathometers

While these devices employ sound as the transmitted and received impulse, their principles and construction

ion are very similar to radio equipment, in fact the circuits which actuate the device are nothing but the usual oscillatory and amplifying circuits employed in radio. The value of the fathometer should be obvious to all seamen, particularly during foggy weather. However, like all other devices on board a ship, the deck officer must have a general knowledge of the fathometer and its peculiarities in order to use it to advantage. The received signal, which indicates the depth of the water under the keel of the vessel, is often dependent upon the strength of the transmitted signal, the depth of water, and the type of bottom over which the ship is steaming. The navigator must learn how these factors affect the performance of the fathometer, and to compensate for their variations when necessary, in order to provide a definite and accurate indication of the depth of water under the keel.

● Weather and Hydrographic Broadcasts

At regular times each day there are transmitted from many radio stations throughout the world a synopsis of weather conditions for the locality served by the radio station and also for the larger general sea areas. These broadcasts enable a master to draw up a weather map and predict the weather which his vessel may encounter. General forecasts for particular localities are usually included in the weather broadcasts, but these are often insufficient for the purposes of the ship. In areas infested by hurricanes or typhoons, radio stations afford almost constant information regarding such storms, particularly concerning their path and speed of translation. Many ships can thank the radio for timely storm warnings. The Weather Bureau relies in part upon ships at sea for information upon which to base their weather reports and storm warnings.

Hydrographic broadcasts are also sent by many radio stations. These broadcasts include items important to safe navigation such as the location and drift of derelicts or other dangerous objects, carrying away or displacement of navigational landmarks, or inoperative status of shore navigational facilities. The importance of these warnings to shipping is readily recognized. Masters and deck officers should know how, when, and from where weather and

hydrographic broadcasts can be received for the locality in which they are operating. Provision is also made to broadcast hydrographic or meteorological information from ships at sea when the safety of navigation is endangered.

There exists a number of other developments in the radio field which may aid the navigator. These include a method of obtaining simultaneous bearing and distance on a beacon. This necessitates both an underwater sound receiver and a radio direction-finder on the ship. Signals from a submarine bell or oscillator and from a radiobeacon are transmitted simultaneously. The radio direction-finder aboard ship obtains a bearing on the fixed radiobeacon, while the time interval between the receipt of the radio signal and the sound signal affords a fairly accurate measure of the distance to the fixed radiobeacon thereby giving the navigator a fix in foggy weather.

A new application of the radio direction-finder is appearing. It is well known that severe storms are accompanied by an excess of atmospheric or static, and it has been discovered that a radio direction-finder can observe and measure within useful limits the center of the atmospheric disturbance.

Attempts are now being made to develop a device known as a "fog eye", which, by use of infra-red or other emanations from various objects, suitably amplified by means of radio circuits, will detect the presence of objects in a fog at a considerable distance, at the same time affording a bearing.

[To Be Continued]

A New Primer for Ship's Hulls

The shipowner has to be eternally vigilant in order to achieve success in maintaining the strength and seaworthiness of the hulls of his ships. His great enemy is corrosion, and in his flight against this foe he is constantly on the watch for efficient and economical surface protection. He will therefore welcome the announcement that an old reliable marine paint manufacturer has produced a new protective primer for new and sealed steel surfaces.

The Federal Composition and Paint Company, Inc., after much ex-

perimental research and considerable practical test work, offers Federal Marine Primer as a solution of this surface protection problem, and as an excellent base for all paints except white and light colors.

The advantages claimed for this primer are:

- 1—Its basic pigments have decided rust inhibitive powers;
- 2—It produces an elastic film which will not break under ordinary expansion and contraction, or from the weaving of the hull structure;
- 3—It has great hiding and covering powers;
- 4—It has excellent adhering quality;
- 5—It is very easily applied;
- 6—It dries thoroughly in two hours.

In the manufacture of Federal Marine Primer, especially selected water resistant varnish bases are blended, and then heat treated at high temperatures to insure a highly elastic and impermeable film. The vehicle thus produced is combined with a blend of pigments that possesses active rust inhibitory powers. These pigments when in direct contact with a clean iron or steel surface in the presence of moisture, prevent the formation of rust, or the action of corrosion on that surface.

This is an important feature since with any vessel on drydock it is never absolutely certain that all of the surface is chemically dry at the time of application of the primer. Here then is a primer which insures surface protection by both its inherent elements. It produces an impervious sheet of elastic film which keeps moisture away from the steel, and it supplies agents adjacent to the surface which prevent corrosion if the film should crack and allow moisture to seep in.

Careful tests show that these results actually accrue in practical use at sea, on the hulls of several ships. These tests are so conclusive that they warrant earnest consideration of the use of Federal Marine Primer by all of those who are responsible for corrosion prevention and hull maintenance.

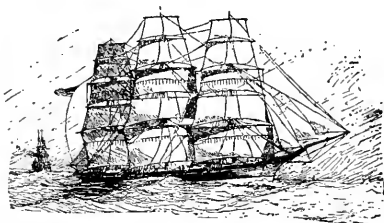
It is recommended that one or two coats of this primer be applied on the scaled or sanded surfaces of steel hulls, followed by a coat of anti-corrosive and a coat of anti-fouling and/or boottopping or topside.

..... The Beachcomber's Loot

*Some Marvelous Sea Lore Gathered Where Found,
Without Regard to Authority. Only the Ink
and the Paper were Ours and Those
are Now Yours. Quien Sabe?*

Maximum Speed Under Sail. Dear Beachcomber: In your "loot" column for August you publish an account of Blue Jacket, whose patent log showed momentary flashes of 23 knots speed when running before a westerly gale from New Zealand to Cape Horn. This is very interesting, and at first reading seems impossible. If she "averaged 20 knots speed for several days" she would have far eclipsed the Lightning's record of 436 nautical miles in 24 hours. I suspect that your source of information, or your proof reader, or typewriter has slipped, and that the story should have read "she averaged 20 knots speed for several hours."

The momentary speed of sailing ships is an exceedingly interesting topic for speculation, and when we contemplate a fabric of wood and hemp and canvas carrying 75 to 200 passengers and 3000 tons of cargo being driven by wind through water whose surface is composed of waves with a length of 200 feet from crest to crest, and a height of 20 feet from bottom of hollow to top of crest, we begin to get some conception of the fine old art of wood shipbuilding.



More power to you, Beachcomber, your loot is stimulating, and brings back many interesting recollections.

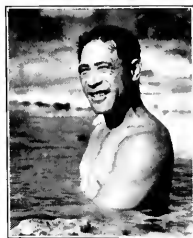
Sincerely yours,

H. G. Jones,
Lt. Comm. U.S. Coast
Guard Service, Ret.

(Editor's Note: Thanks, Commander Jones. Your surmise is quite correct. The story—page 243, August Pacific Marine Review, center column, three lines from bottom—should have read "twenty knots speed for several hours.")

Slate Writing Extraordinary. She was one of those old square-rigged limejuicers on which the noon position was worked out on a slate in the saloon, they having no chart house. One day running her easting down between New Zealand and Cape Horn, the First went down as usual to work out his fix. When he got hold of the slate pencil an uncanny feeling came over him as if some unseen personality were controlling his actions.

Some overpowering spirit held his hand in a supernatural manner and



wrote across the slate this amazing message:

Steer N.N.E. 35 miles. 16 men in boat starving.

Trembling the mate took the slate to the captain. The captain saw instantly that it was the handwriting of his own brother, master of a four-masted barque which had sailed from Australia a week ahead of them. He followed the directions and soon came upon the boat with the sixteen men in a starving condition. His brother had gone down with his ship.

Sans Seamen. In the closing years of the last century many small British vessels were in the codfish trade, bringing general goods to Labrador and Newfoundland, taking dried codfish back to Europe. Some made British ports direct, others made Greek and Italian ports to discharge their fish and pick up olives, wine, lemons and oranges for Britain. About 1900, one such, the Snacella, 90-ton topsail schooner, came out from Liverpool with a crew of five. One died on the trip out, and two deserted the ship at Newfoundland. Winter was coming on, and the captain and mate decided to try the trip back without A.B.'s. They made the voyage with ship and cargo intact. Sailing time, 19 days from Bonne Esperance, Newfoundland, to Liverpool, England.

A Close Race. On March 22, 1891, two British sailing ships, Dunbarton and Montgomeryshire, were towed through the Golden Gate, laden with wheat, having cleared for a voyage around the Horn to Queenstown for orders. They made sail together, and were within sight of each other until well into the S.E. trades. After rounding the Horn, and at a point little north of the Falklands, the

Dunbritton lookout raised the sails of a ship hull down and saw his ship hauled up into the wind. The Dunbritton carried on with a good wind. As she approached the Irish coast about dark she was under easy sail, the captain not wishing to make port till daylight. At about 2:00 a.m. a ship came up under full sail and passed the Dunbritton whose captain immediately ordered all sail set. At daylight the stranger proved to be the Montgomeryshire, and she got into port a few minutes ahead of her rival—both 100 days out of San Francisco. On consultation, it was found that the Montgomeryshire's carpenter had been washed overboard just north of the Falklands and the ship was promptly hauled up into the wind, a boat lowered, and the man rescued. This maneuver had been witnessed by the lookout on the Dunbritton.

The Wind Bloweth Where? In the 40's, south latitude, and in that vast region of the South Pacific which stretches from Australia and New Zealand to Cape Horn, mariners can usually count on a strong westerly wind, so that the track of a sailing ship in "making her easting down" is ordinarily a very fair imitation of the shortest distance between two points.

Clearing Port Phillip Heads on June 4, 1896, the British sailing ship, *Loch Sloy*, almost immediately ran into a striking exception to this rule. Her holds were filled with a good freight list, her cabin housed eight passengers, two of whom were women. Faced by a series of Southeast or Northeast gales, the *Loch Sloy* was 68 days from Melbourne to the Horn, and 133 days to the English Channel. Her run from Melbourne in 1897 was 85 days total. In such prolonged beating to windward in heavy gales, some casualty is to be expected, and the *Loch Sloy* encountered a few—some tragic, some comic.

One midnight a huge sea came aboard, broke open the hen coop on deck, smashed the cabin skylight, and swept into the saloon and first class cabins, two dozen frightened squawking fowls, and two feet of angry sea water.

Oppressed by the long fight against the weather, one of the male passengers left a note for the cap-

tain and slid over the side into the "cool green depths".

Shortly after passing the Horn, it was discovered that the coal supply for the galley range was practically exhausted, and the captain, after due consideration—determined to hold on his course, and to use spare spars, packing cases, and part of a cargo of lard for fuel with which to cook food.



The Carrier Pigeon. A very short and fateful history is that of the medium clipper ship, *Carrier Pigeon*, built in 1852 by Hall, Snow, and Company at Bath, Maine. She sailed from Boston, January 28, 1853 under command of Captain Azariah Doane, with over 1300 tons of cargo consigned for San Francisco. Fair winds and a good passage were the record until she arrived off the California coast, where she encountered dense fogs. On the night of June 6, 129 days out from Boston, and thought by the captain to be off the Farallons, she went ashore about fifty miles south of her supposed position. All hands were saved, but the ship became a total loss, with an insurance value on hull, cargo, and freight of \$194,000.00. The hull and cargo were sold by the underwriters as she lay for \$1500.00.

The point of rocks on which she struck has been known ever since as Pigeon Point, and now carries a fine

U.S. Lighthouse and Fog Signal Station.

Fiery Star. The fine Yankee clipper *Comet*, built in 1851 by that master ship builder, William H. Webb of New York, was a particularly beautiful model, and made many a fast passage. Her second voyage from Francisco to New York, made in 83 days, 18 hours, has been looked upon by experts as a very fair sample of fast sailing ship transport. This voyage logged 15541 nautical miles, an average of 185½ daily, or 7¾ knots speed. About April 1, 1863, she was sold to British shipowners and put on the Australian run under the name *Fiery Star*.

On April 1, 1865, she cleared Moreton Bay for London with passengers and cargo. Three weeks out, fire was discovered in the cargo. Hatches were battened down, and water pumped in, but the fire gained headway. There being room in the boats for eighty persons, the mate (a Mr. Sergeant) and seventeen seamen volunteered to stay aboard and take their chances. The other officers and members of the crew with all passengers took to the boats, intending to stand by the ship. The next morning the three boats had disappeared, and nothing was ever heard or seen again of the boats or their occupants. When the ship was about to sink, and the eighteen men had given up hope, the bark, *Dauntless*, came along and rescued them.

East Indiaman Fire. Outward bound for Bengal and China, the Honorable Company's ship, *Kent*, was beating through a heavy swell in the Bay of Biscay on March 1, 1825, when a cask of spirits broke loose in the hold. An officer took some men down to secure this cask. A violent roll of the vessel threw off balance one of the men who was holding a lighted candle. The candle, dropping to the deck, immediately set fire to the leaking whiskey, and the hold was in flames in a few minutes. Most of the boats were put over at once, and many of the passengers, soldiers, and crew gotten away from the ship. But before all could be saved, the hull blew up, taking with her one woman, 21 children, four soldiers and 64 sailors.

... A Critique of American Maritime Collision Law

By Lieutenant Raymond F. Farwell, U. S. N. R.

Assistant Professor Transportation, University of Washington

Notwithstanding the fact that the international rules for the prevention of collision at sea have been in effect since 1890, and the inland rules, with slight changes, since 1897, we continue to have collisions with more or less frequency. They occur not only in close maneuvers or in thick fog but under ordinary steaming conditions in broad daylight, and on clear nights with all lights burning brightly. They occur between merchant vessels, between merchant and naval vessels, and between naval vessels. An examination of the several thousand cases that have come before the federal courts since the present rules were adopted discloses the surprising fact that only about three per cent of these collisions are due to what the courts call inevitable accident, and that the other 97 per cent are due to faulty navigation; that is, one or both vessels involved violated some rule of the road designed to prevent collision under the particular circumstances of the case.

When we look for an explanation of this apparently widespread disregard of the law sufficiently broad to justify the proposal of something constructive, we are confronted with three possible causes; (1) that the rules are violated deliberately, (2) that the rules are violated through ordinary ignorance, (3) that the rules themselves are too complex for the average mariner to understand and obey them.

It seems reasonable to assume that the first cause suggested can have relatively little significance in practice. Certainly there can be no real incentive to the navigator to disregard the rights of another vessel if by so doing he jeopardizes the safety of his own. The seagoing lunatic

who habitually tries to get across the bow of the fellow coming from starboard is likely to suffer short shrift, whether he be in the merchant marine or in the naval service. While he may last long enough for one collision, it is much more probable that he will run afoul of the Coast Guard or the steamboat inspectors or the naval board of investigation before real damage is done. And it goes without saying that the individual with the instincts of a road hog usually has a high regard for the safety of his own skin, a deterrent which is to the advantage of his less selfish fellow-seafarers.

One rule, however, which few will deny is quite flagrantly violated in practice, is Art. 16, international and inland rules, which provides:

"Every vessel shall, in a fog, mist, falling snow, or heavy rainstorms, go at a moderate speed, having careful regard for the existing circumstances and conditions.

"A steam vessel hearing, apparently forward of her beam, the fog signal of a vessel the position of which is not ascertained shall, so far as the circumstances of the case admit, stop her engines, and then navigate with caution until danger of collision is over."

The moderate speed referred to in the first paragraph has been very specifically defined in two decisions of the United States Supreme Court. These decisions, in substance, provide that the moderate speed contemplated by law for any vessel shall be such that she can take off all her way in half the distance of visibility; and that where the visibility is practically nil (less than a quarter of a mile) and traffic is to be expected, moderate speed is bare steerage

way. The wide divergence between this legal speed in fog and the speed commonly used will be admitted as matter of course by any fair-minded navigator. A destroyer skipper would hardly think in terms of a speed below 10 knots unless he lost suction. In the merchant service, where a vessel is traveling constantly over regular run, it is the custom rather than the exception in fog to maintain approximately the regular speed, the justification ordinarily used being that only by so doing can reasonable certainty of the vessel's position be maintained. A number of years ago the writer was employed, as first officer of a passenger steamer operating between two cities of Puget Sound. A schedule of four round trips a day called for a speed of 15 knots; and however foggy might be the weather, it was unusual for this vessel, which sometimes carried a thousand passengers, to be more than a few minutes late.

As to the requirement of the second paragraph of the rule, that the engines must be stopped, not merely slowed down, at the first sound of fog signal ahead, here again we find implicit obedience most exceptional. The navigator is much more likely to hold on until the increasing loudness of an approaching fog signal leaves no doubt of the other vessel's proximity, and then, if he stops the engines at all, to ring them ahead again almost immediately. The courts have already established the principle that the spirit of the rule is not obeyed unless the engines are kept stopped until repeated signals from the other vessel have satisfactorily indicated her position.

Yet widely and openly as Article 16 is violated, it is doubtful if man, collisions in fog are attributable to

cessive speed. Inexperienced officers do not ordinarily have charge of vessels in foggy weather, and ship masters acquire great skill in judging direction and proximity of sound signals, and in feeling their way past another ship in the thickest weather. From the standpoint of legal liability, however, a strict adherence to this rule is as important as to any other. In the case of the *Marcello*, the court held that just outside New York Harbor in a thick fog six miles an hour was excessive speed and that only half that speed was justifiable. In the well-known case of the *Beaver* and the *Selja*, which occurred off the California coast some years before the war, the Supreme Court laid striking emphasis on the mandate in Art. 16 to stop the engines. The *Selja* was a Norwegian ramp, inbound from the Orient, and the *Beaver*, later to become the navy submarine tender, was at that time a passenger liner plying between San Francisco and Portland, Oregon. The testimony showed that the *Selja* was making half speed, about six knots, when she first heard the fog signal of the *Beaver* very faintly ahead, and five minutes later, after hearing several more signals, her speed was cut down to three knots. The vessels continued to approach each other for five minutes more, and the *Selja's* engines were then stopped. She drifted for another five minutes, and then, on sighting the *Beaver* ahead, her engines were put at full speed astern for one minute, when the collision came. The *Selja* was practically dead in the water when struck, while the *Beaver* had maintained excessive speed right up to the moment before the collision. It would seem that here was a case of extreme negligence on the one hand and of scrupulous caution on the other; but the Supreme Court upheld the ruling of the lower courts that both vessels were equally liable, the *Beaver* for excessive speed and the *Selja* for failure to stop her engines when she first heard the fog signal of the *Beaver* sixteen minutes before the collision.

It is probable that violations of the rules which cause or contribute to collisions are much more frequently due to ignorance of what is required than to deliberate defiance of the law. This may have been true in the error of the *Selja*; it is certainly

true in a large proportion of the cases that come before our courts. Nor are such instances confined to merchant vessels. As a reservist on active duty the writer was on one occasion bound up the Pacific Coast in a destroyer which was making 17 knots in a thick fog when the whistle of a steamer was heard two or three points on the starboard bow. The commanding officer stopped his engines in obedience to Art. 16 and immediately began to blow the two long blast signal, although the ship was forging ahead with the momentum given by a 17-knot speed. Apparently he was actuated by a hazy knowledge of Art. 15, international rules, which provides, of course, that the two prolonged blasts in fog shall be given by a steam vessel under way, but stopped, and having no way upon her. The other vessel, a large cargo ship, maneuvering on the assumption warranted by the signal that we were standing still, attempted to cross our bow, and only our use of emergency full speed astern averted a collision, seemingly by inches. Had she collided with us it is obvious that the fault and the liability would have been ours.

In the unusual case of the *West Hartland*, which sank the coastwise passenger liner *Governor* a few years ago in Puget Sound with the loss of several lives on a calm, clear night, the two vessels met in the crossing situation off Point Wilson, just outside Port Townsend. The *West Hartland*, a single screw turbine vessel of 8,800 tons, with a full load of lumber, was bound outward at an estimated speed of six knots, and the *Governor*, a full powered twin screw reciprocating vessel making 15 knots, attempted to cross the bow of the *West Hartland*, which had the right of way. Too late the pilot of the *Governor* discovered his error, and in trying to rectify it, succeeded in stopping his vessel across the bow of the slow-moving freighter. The testimony at the subsequent trial showed that the master of the *West Hartland*, acting on the apparent assumption that he was under international rules, failed to use either the one blast crossing signal or the four blast danger signal, as required by the inland and pilot rules, but gave only a single blast a few seconds before the collision as he sheered out to the right, and in

consequence, his vessel was found equally at fault with the *Governor*.

To say in these pages that every government and merchant deck officer should have a knowledge of the rules of the road that is accurate and crystal-clear might seem wholly gratuitous were it not that many instances such as those already related prove that the accomplishment is by no means universal. In special classes held at the University of Washington for master mariners and other licensed officers shortly after the war, it was found through individual examination that, generally speaking, the longer a mariner had had his master's license the less he knew about the rules of the road. If he could give the usual passing signals for inland waters, the lights he was supposed to carry, and 50 per cent of the sound signals for fog, he was better than the average. The reason for this is not difficult to find. It is a fact that most licensed officers honestly believe themselves thoroughly posted on the rules of the road. They have passed the inspectors' examinations and therefore have documentary evidence of their proficiency. That they often overrate their ability in this respect is probably due to two causes.

In the first place, the examination given on the rules by the steamboat inspectors, and it must be admitted in all fairness, by naval examining boards, too, is generally little more than a memory test of lights and sound signals, rather than a test of the candidate's ability to apply the rules in a difficult situation. In the process of acquiring various grades of license from third mate to master and first-class pilot, the writer has appeared before the inspectors on five different occasions. Without exception the questions were purely of the memory type, one examiner requiring the candidate to write from memory the entire set of sailing rules. This practice is pretty generally known, with the result that the candidate usually devotes most of his preparation to the mysteries of the meridian altitude and the time sight. The rules of the road are crammed into the last two or three days of preparation, and the various sound signals and the regular and special lights are simply memorized parrot fashion. Naturally facts learned in this way do not stay long

in the memory. And once the gauntlet of mates' examinations has been run and a master's license acquired, the mariner is then forever exempt from further professional examination of any description.

In the second place, the average merchant marine officer is not more familiar with the rules because the importance in practice of knowing them thoroughly has never been brought home to him. Unless he has actually been in a collision that resulted in a law suit for his owners, he has probably not realized what a departure from the rules might cost in dollars and cents, to say nothing of lives and property. Most seafaring men will scout the idea of attempting to become familiar with the interpretations put on the rules by the federal courts; yet it is just these interpretations, as expressed in decisions of other similar cases, that nine times out of ten determine whether or not a particular vessel is liable for her collision. The important point is not what a mariner thinks a rule means; it is what the Supreme Court says it means. There is hardly a phrase or a paragraph in the rules that has not been clearly explained and interpreted by the courts, and unless the navigator is familiar with the ruling decisions, all the information he can get by reading or even memorizing the rules may be of little value.

It is probably not even generally known that when there is a collision between two vessels and the case is brought into court there are only four possibilities of liability in the decision: (1) vessel A may be solely at fault and liable for all damage to both vessels; (2) vessel B may be solely at fault and liable for all damage to both vessels; (3) both vessels may be at fault, in which case the damages will be shared equally, notwithstanding one vessel may have violated a single minor rule and the other vessel three or four major ones; (4) both vessels may be free from fault and the collision held due to inevitable accident, in which case each will bear her own damage. The importance of knowing exactly what is required by the rules lies in the fact that the violation of any rule, however slight, is held by the courts to be a presumption of fault unless it is proved

that the violation could not have caused or in any way contributed to the collision. In the words of the Supreme Court,

"It is the settled rule of this court that when a vessel has committed a positive breach of statute, she must show not only that probably her fault did not contribute to the disaster, but that it could not have done so."

When a collision follows a violation, this is almost impossible to do, and unless a vessel's action has been entirely in accordance with the rules as interpreted by the courts, at least half damages will almost certainly be incurred.

We are altogether too prone to depend upon unrefreshed memory for the details of rules which we learned imperfectly to begin with, and the true import of which, in the light of court decisions, we may never have understood. If the reader is a naval or merchant marine officer who feels satisfied that his daily experience is ample to keep the rules of the road fresh in mind, and to prepare him to act properly in any situation that may arise, it is suggested that he try himself on the following questions which were used in examining licensed students in the special classes previously mentioned:

(1) Under what circumstances is a vessel required to hold her course and speed?

(2) In the crossing situation, having the right of way, how long is she required to maintain course and speed if the other vessel fails to give way?

(3) Under what rules does a vessel operate in a voyage from San Francisco to Seattle?

(4) A steamer is at sea in a fog and her engines break down. What fog signal must she use?

(5) When should a steamer blow three short blasts in a fog?

(6) When do the rules require that a lookout be kept astern?

(7) A steamer is being towed from one dock to another in inland waters at night. What lights must she show?

(8) At sea, in the crossing situation, vessel A has the right of way over vessel B, but vessel B apparently fails to yield, what signal is provided by the rules to be given by vessel A?

(9) What important difference in meaning is there between a signal of two blasts under international rules and under inland rules?

(10) A steamer passing through an inland channel at night followed by another steamer goes aground. What lights should she show and what sound signal should she use?

If the reader can answer these questions offhand, he is probably one of the few navigators for whom this article is not written. And yet it would be hard to find a question in the list the answer to which is no of practical value to anyone entrusted with the navigation of a yard tug, a passenger liner, or a first-class battleship. The correct answers, in accordance with the context of the rules and governing court decisions are as follows:

(1) (a) A steamer in the crossing situation having the right of way over the other steamer; (b) any vessel overtaken by another vessel; (c) a sailing vessel meeting a steamer but not overtaking her; (d) one sailing vessel meeting another over which she has the right of way as provided in art. 17, international and inland rules.

(2) Until the vessels are in such close proximity that in the judgment of the privileged vessel's master it is not possible for the burdened vessel alone to avert a collision.

(3) From San Francisco to Seattle under inland rules and pilot rules thence to the beginning of inland waters in the Strait of Juan de Fuca under international rules; thence to Seattle under inland rules and pilot rules.

(4) One long and two short blasts of the whistle at intervals not exceeding two minutes.

(5) When the engines are going astern and there is another vessel in sight.

(6) (a) When leaving anchor or moorings; (b) when actually going astern; (c) at all times when changing course or speed; (d) whenever under way at night if no fixed stern light is carried.

(7) All running lights including side lights.

(8) A detonating signal or flare up light; any bright light but no whistle signal.

(9) Under international rules,

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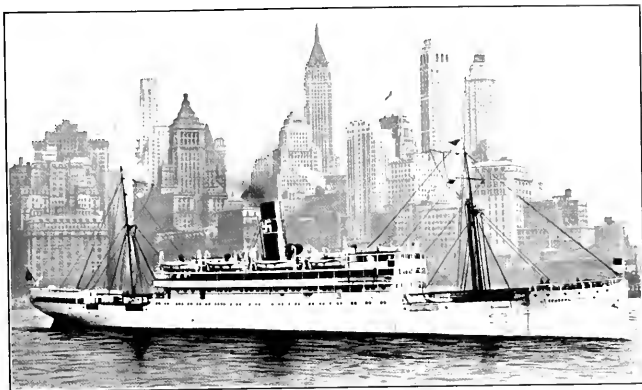
... Pacific-Orient One Class Passenger Service

Operating in conformity with their slogan, "Every passenger a guest," the States Steamship Line service from Pacific Coast ports to the Orient is proving a very popular innovation in trans-Pacific tourist trade. The line maintains a schedule of a steamer clearing from Portland every three weeks for Yokohama, Kobe, Shanghai, Hongkong, and Manila, with return voyage via San Francisco. Their three steamers — S.S. General Lee, S.S. General Sherman, and S.S. General Pershing — are identical ships. On these ships they carry only one class of passenger. Every passenger has the full run of the ship, and all of her public rooms. Every passenger is a guest.

With a displacement of 10,000 tons, a length of 400 feet, and a beam of 50 feet, the General ships of the States Steamship Line are comfortable in a sea way. Every bedroom on each ship is an outside room with windows facing the sea. Every room has running hot and cold water, many have private baths and toilets, and on each of the three passenger decks there is ample provision for bath and lavatories.

No berths are tolerated in the passenger rooms on these ships. Each guest is furnished with a bed, equipped with the finest mattress, the best linen, the fleeciast blankets, and the downiest quilts. Not more than two beds are in any room.

The public rooms are very comfortable, well lighted, airy compartments, and they are three in number; viz, the smoking room, the social room, and the dining saloon. Located at the forward end of the house on the Promenade, or "A" deck, the social hall has windows and natural ventilation on three sides. This pleasing and comfortable feature is common to all three rooms due to their locations, the smoking room being at the after end of the house on "B" deck, and the dining



State Steamship Lines steamer General Pershing here shown against the background of Manhattan.

saloon at the forward end of the house on "C" deck. The dining saloon is approximately 40 by 50 feet and seats 85 persons at small tables in one sitting.

All of the General ships have large refrigerating capacity. This enables the ventilating system to deliver cooled air to every part of the passenger accommodation, and also enables the chef and his assistants to have fresh fruits, fresh vegetables, fresh salads, and fresh meats at every meal on every day of the long voyage. These two considerations are very important factors for passenger comfort in the tropics.

Ample provision is made for out-of-doors recreation on the spacious promenade decks, where—as well as in the public rooms—refreshments are served to the guests at eleven a.m. and four p.m.

The States Steamship Lines steamers are booked full both ways, with travelers who like the one class system. These passengers hail from all over the world, but the greatest percentage come from California. An especial feature is made of the cuisine, and this feature is largely re-

sponsible for the popularity of the line.

Trade Literature

Generating Sets. Troy-Enberg Bulletin No. 107 is a 32-page booklet describing the complete line of reciprocating steam engine driven generators built by the Troy Engine and Machine Company. These sets have back of them the experience of 45 years in steam engine design and manufacture, and of 35 years in planning and building electric generators.

Prominent American Marine users of Troy Enberg generating sets include the Alaska Steamship Company; American Diamond Lines; Barber Steamship Lines, Inc.; Clyde Steamship Co., Inc.; Colombian Steamship Co., Inc.; Dollar Steamship Lines, Inc., Ltd.; Eastern Steamship Lines, Inc.; Export Steamship Corp.; Moore & McCormack Co., Inc.; Munson Steamship Line; New England Steamship Company; States Steamship Co.; Weyerhaeuser Steamship Company; and Wilmington Transportation Co.

..... Performance of Geared Turbine Cargo Liners

Three Identical Units of the Luckenbach Fleet Show Noteworthy Records on Intercoastal Run

Three vessels of the Luckenbach fleet of intercoastal cargo carriers have for the past 10 years stood at, or close to, the top in the Luckenbach honor list for all-around economy of operation. These are the Lillian Luckenbach, the Dorothy Luckenbach, and the J. L. Luckenbach. They are identical as to hulls, equipment, and power plant; and they all had an interesting and practically identical start in life as U. S. Navy transports at the close of the World War.

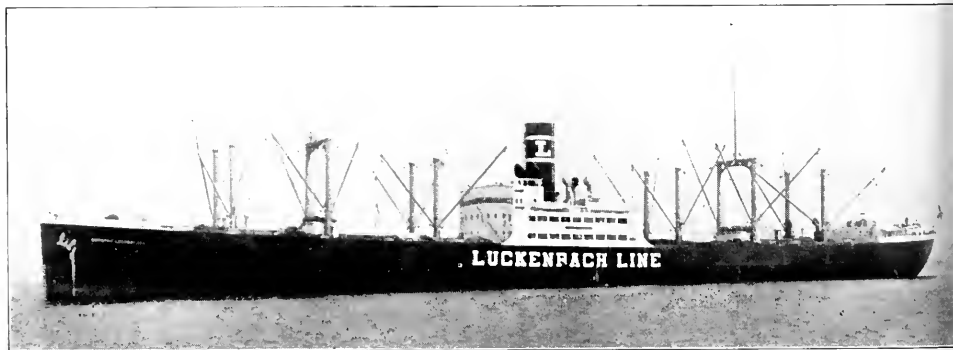
Designed for Luckenbach service, and contracted for by Luckenbach with the Sun Shipbuilding Company of Chester, Pa., these vessels were requisitioned on the shipbuilding ways by the United States Shipping Board, and were finished by the Board as Navy transports, being turned over to the Navy in 1919. They were operated by the Navy in trans-Atlantic service for a couple of years, with no regard for maintain-

ance. When they were turned back to the Shipping Board, that body opened negotiations with Luckenbach to take them over. The boilers and condensers had gotten into bad shape, and concomitant damage had accrued to the turbines. Before taking them over, the Luckenbach Steamship Company insisted that the power plant should be completely overhauled, and that new boilers should be installed. As a result of this insistence, each vessel was equipped with three fire tube boilers of the Scotch marine type, 17 feet 6 inches in diameter and 13 feet long, designed for 225 pounds steam pressure. These are the largest and heaviest boilers ever installed on an American vessel.

In addition to the new boilers, there were installed two 150 K.W. Allis-Chalmers alternating current generators, each directly connected to a 250 horse power De Laval turbine. A number of auxiliaries which

had been steam-driven were changed over to Allis-Chalmers A.C. electric motor drive; the condensers were completely overhauled and the main turbines put into first class condition.

This work being all completed to the satisfaction of the engineering organization of the Luckenbach line the three vessels were taken into the Luckenbach Steamship Lines in March, 1923. Since that date they have been in regular operation on the intercoastal run between Seattle, San Francisco, Los Angeles and New York. On this run, the Luckenbach vessels make 4½ round trip each year, and the round voyage is approximately 12,500 miles. To date therefore each vessel has run approximately 650,000 nautical miles or an aggregate distance for the three of a little under two million miles. This voyage carries a steamer into all varieties of weather from dead calm to hurricane, from freezing temperatures to the tropics. The performance of power plants on this run is therefore of great interest to marine engineers, and we are glad to be able to present a summary of the performance of these three sisters operating for 11 years continuous service:



The Luckenbach intercoastal cargo liner Dorothy Luckenbach is propelled by De Laval single reduction geared turbines.

Hull and Power Plant

Principal characteristics of the three ships are:

| | |
|------------------------------------|----------------|
| Length overall..... | 473 ft. 7 in. |
| Length between perpendiculars..... | 449 ft. 1½ in. |
| Beam molded..... | 60 ft. |
| Depth to shelter deck..... | 40 ft., 11 in. |
| Gross tonnage | 8713 |
| Net tonnage | 5489 |
| Deadweight tonnage..... | 11,980 |
| Draft loaded | 31 ft., 1 in. |
| Horsepower main turbines..... | 5000 |
| Speed loaded at sea..... | 14 knots |

The propulsion power plants of each of these three vessels comprise two sets of De Laval cross compound steam turbines. Each set of turbines is connected through single reduction gearing to one of the two propeller shafts. Each set has a capacity of 2500 shaft horsepower at 400 revolutions per minute on 200 pounds throttle pressure. The De Laval gearing reduces the rotation speed from 2400 revolutions at the turbines to 110 on the propeller shafts. These shafts are 14 inch diameter and each carries a 14 foot 1 inch diameter four-bladed propeller of 14 feet, 6 inch pitch. This combination gives the ships 14 knots sea speed in loaded condition with plenty of reserve power so that they are able to average practically 14 knots on their schedule.

Operation Experience

The testimony of the engineers operating these De Laval turbines is that they do not know what turbine trouble means; that the cost of maintenance is practically nil; that they never have had to stop the ships on account of any turbine troubles; that the gears are silent and very efficient; and that they are able to sleep nights and never have emergency calls.

The consumption of fuel oil at sea averages 360 barrels a day. If we assume 5000 shaft horsepower this works out at 0.976 pounds per shaft horsepower hour which is very good for a plant of this type at 200 pounds pressure and no superheat.

One grade of Socony Vacuum lubricating oil is used for all purposes on the Luckenbach ships. The consumption on these De Laval turbine

jobs averages 6 gallons a day for all purposes. Leakage on the turbines is practically nil. A De Laval centrifugal oil purifier is used continuously to keep the circulating oil for the turbines in first class condition. Once a day this separator is stopped long enough to take out the dirty bowl and insert a spare that is kept clean and ready.

Feed water is kept in condition by the Neckar water-softening system, and condensers are kept tightly packed so that the turbines operate with clean steam. Under these conditions a De Laval steam turbine will stand up to its work and deliver

its rated capacity over long non-stop periods without trouble.

The Luckenbach Steamship Company showed remarkable faith and forward-looking vision when in 1917 they designed these freighters for turbine propulsion. The results in eleven years of continuous operation since the war experience of these ships have fully justified that faith.



An Interesting Portable Rotary Pumping Unit

The development of a high speed rotary displacement pump has made possible the compact and comparatively light weight transportable gasoline engine driven unit mounted on a trailer.

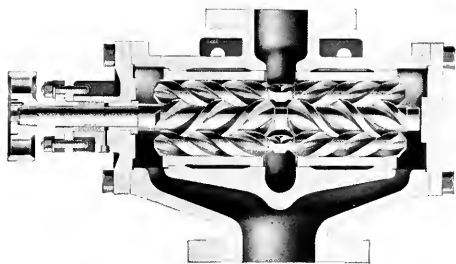
The pump, which was supplied by the De Laval Steam Turbine Company, Trenton, N. J., is known as the De Laval-IMO pump. Driven at approximately 1675 r.p.m. by a 60 hp. gasoline engine, it delivers 90 gallons per minute against 495 pounds per square inch pressure with a suction lift equivalent to 14 inches of mercury. The pump itself weighs only 398 pounds, and the complete unit, with engine, about 2000 pounds.

This IMO Pump has been illus-

trated and described in former issues of Pacific Marine Review. It has only three working parts, a central power rotor and two sealing rotors, which mesh in such manner that the liquid is carried through, as by continuously acting piston, without shock or pulsation. There are no timing gears or separate bearings, and but one stuffing box, which is subjected to suction pressure only.

The rotating parts are in complete rotational balance and, except for suction pressure against the area of the driving spindle at the stuffing box, are also in hydraulic axial balance.

This portable pump should find many emergency uses in shipyards, on piers, and for salvage work.



Sectional view of the De Laval IMO pump used on the portable unit described herewith.

American Maritime Legislation

Some Notes on Measures Passed or Left Pending by the Seventy-Third Congress

At the adjournment of the seventy-third Congress, June 18, 1934, a number of important measures relating to American Merchant Marine operation were left in an unfinished state, and will be pending before the next Congress. Some of these are favorable to American operators—some of them would impose additional cost burdens on our merchant ships. The following is a partial review of this legislation.

● Coastwise Laws

The body of American law restricting the United States coastwise and intercoastal passenger and cargo carrying business to American owned and American built vessels has always been regarded as the basic legislation upon which an American Merchant Marine was built. It has therefore always been watched with zealous care by shipowners and citizens interested in American flag ships. During the past session of Congress, a number of bills were introduced which would modify or affect the operation of Coastwise laws.

For instance, Senator McDuffie introduced a bill providing a new political set-up for American Samoa, wherein the shipowners found a provision repealing the Coastwise Laws with regard to that island possession. They immediately protested, but found that certain treaty stipulations made this repeal necessary, so the objection was withdrawn and the bill became law. Congress, in passing this law, enacted a concurrent resolution setting forth the reasons for making an exception of Samoa, and re-affirming the American Coastwise principle.

Other instances came up in relation to the Virgin Islands and to Puerto Rico. These two island possessions are listed among others in Section 21 of the Merchant Marine Act of 1929, wherein the president is empowered to extend the Coast-

wise Laws to cover these islands as soon as he is satisfied that adequate American tonnage is available in their service. Bills were introduced seeking to remove the Virgins and Puerto Rico from this listing under the very plausible reason that foreign capital was ready to undertake great investments for harbor improvements there if freed from the menace of the application of the Coastwise Law.

The Virgin Island measure passed the Senate, but no action was taken in the House; that for Puerto Rico died in the House, and was not brought up in the Senate.

In connection with the measure empowering ports of entry to establish free trade zones, which passed both in House and Senate, and was signed by the President, it was necessary for the shipowners to watch the wording very carefully in order to have the law prohibit foreign vessels from trading between American free trade zones. After the bill passed the Senate, and while it was under discussion by the House Ways and Means Committee, a clause was added embodying the following:

"Nothing in this act shall be construed in any manner so as to permit vessels under foreign flags to carry goods or merchandise shipped from one foreign trade zone to another zone or port in the protected coastwise trade of the United States."

A bill was introduced in the House by Mr. Bland to prevent the readmission to the Coastwise trade of American vessels sold to foreign owners. It was favorably reported by committee, but failed to pass in the final hours of Congress.

● Personnel Aboard Ship

Two bills relating to manning and officering requirements emphasize the necessity of an acceptable code covering shipyard operations.

These two measures—one relating

to the Great Lakes, and the other ocean coastwise and harbor vessels—would have greatly increased requirements as to licensed officers carried. Both bills died at adjournment, but unless a code is accepted in the interim, they will probably be up for passage at the next session.

Bills were introduced in House and Senate to amend Section 2 of the "Act to Promote the Welfare of American Seamen", with the purpose of increasing efficiency and making working conditions easier aboard ship. These bills had the endorsement of the American Stevedore's Association, but no action was taken by Congress before adjournment.

A House resolution, introduced by Mrs. Norton would provide that any officer of an American documented vessel, who holds an unexpired license, should be furnished hospitalization and medical treatment at the U. S. Marine hospitals; and that seamen who have served 40 days more on an American documented vessel during the year preceding application, shall be granted treatment at the U. S. Marine hospitals. Present regulations call for 60 days service and application within 10 days of the end of that service. This bill had not received final action when Congress adjourned.

Senator Sheppard introduced a bill in reference to personal injury suits by seamen which would give to the court in such cases jurisdiction to render against the vessel, as well as a person against the employer. This measure also was left pending at adjournment.

Senator Wagner's unemployment insurance measure was jettisoned by the Administration.

The annual LaFollette bill appeared in the Senate again. It failed of action. This year's modification would amend the Seamen's Act to provide shipping commissioners to

all ports of entry before whom all seamen must be shipped; bar any illegible alien from being accepted as an American seaman; add fueling ports as places where wages and shore leave could be demanded, and must be given; establish rules for discharge books and prescribe arrangement of watches.

Senator King's bill for deportation of alien seamen failed to pass.

● Preference for American Ships

Three bills were presented whose object was to increase the employment of American flag ships by American shippers. One of them passed and became law; two of them failed to pass.

One which passed, and is now operative, requires that all agricultural products, export of which is financed by R.F.C. shall be shipped in American flag ships.

Mr. Bland's resolution failed of passage. It required that of all cargo exported and imported under trade agreements between United States and other nations 50 percent be carried in American vessels.

Two almost identical measures introduced in Senate and House provided a 10 percent tax on value of goods trans-shipped to contiguous foreign country in the event any such foreign country discriminated against United States in this manner. No action of any kind was taken. Congressman Bland introduced a resolution intended to prevent the so-called "cruises to nowhere", but no action was taken.

● Intercoastal Carrier Regulation

A very important measure was introduced by Senator Dill to amend the Interstate Commerce Act by providing for the regulation under the Interstate Commerce Commission of the transportation of passengers and property by water carriers operating between ports of the United States in interstate commerce. This legislation was based on the report on "Regulation of Transportation Agencies" as prepared by the Transportation Coordinator Eastman. Congress adjourned without passing this bill.

Two other bills on this subject were introduced, but no final action was taken. One would have placed regulation of Intercoastal Carriers under the Interstate Commerce Commission, the other would have strengthened the present control of

the Shipping Board over that trade route.

● Panama Canal Tolls

Congressman Lea reported favorably to the House an administration measure to change the method of assessing tolls at the Panama Canal. This was passed in the House but died in the Senate during the last hours of the session. It will undoubtedly be brought up again during the next session. Since it will call for considerable increase in total tolls, shipowners are naturally opposed, particularly in view of the fact that Panama Canal is now reaping large net profits on its ship canal capitalization. The Shipowner's Associations are therefore marshalling facts, and figures, and operating data to show the wisdom of reducing

rather than increasing these tolls.

● Some New Laws

A number of proposed shipping bills, in addition to those already mentioned, became law at this session. Among these are Public Law No. 257, an amendment to the Longshoremen's and Harbor Workers' Compensation Act, raising the rates of compensation; House Resolution 5038, authorizing pursers or licensed deck officers of vessels to perform the duty of the masters of such vessels in relation to entrance and clearance of same; and Senate No. 1129 to amend the United States Code for the construction and inspection of boilers, unfired pressure vessels, and appurtenances thereof, and bring same abreast of modern practice.

Electrolysis Eliminated

Reports sent Pacific Marine Review just as we close for press indicate that the installations of Marine Electrolysis Eliminators aboard four of the fleet of fast Puget Sound ferries operated by the Puget Sound Navigation Company have proved entirely successful in checking destructive electrolytic corrosion of condenser tubes.

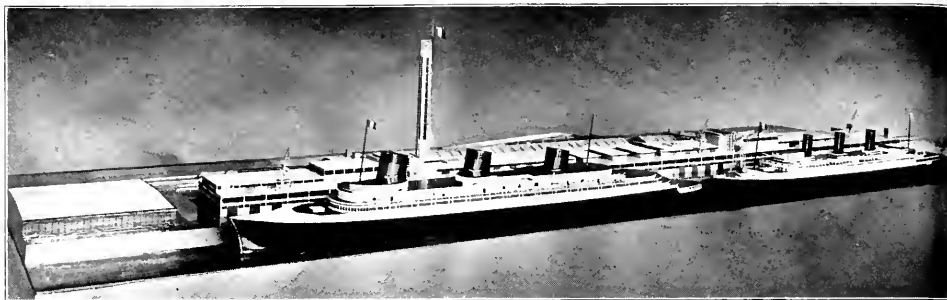
Early in March the largest of the fleet, the S.S. Iroquois, a fast combination ferry, night boat and freight vessel plying a hard run calling for a round trip per day between Seattle, Port Angeles, Port Townsend and Victoria, as well as two round trips between Seattle and Bremerton during the evening layover at Seattle, had five Eliminators fitted to her condenser. Previously the Iroquois had developed frequent cases of tube pitting, which, in the case of this ship, meant endless trouble owing to short layover periods in Port seven days per week. After the eliminators were set up in a circuit designed to reverse the flow of stray electricity, two tubes failed the day they were put in, but in the five months following not a single tube let go. Meanwhile the eliminator cores, a special cast alloy metal, are half eaten away, proving that the circuits have effectively stopped destructive electrolysis. Bertrand Reid, Chief Engineer of the Iroquois is

highly enthusiastic over the results.

The P.S.N. ferries Sol Duc, passenger-night-boat-freighter on the Bellingham run; the Indianapolis, fast 17 knot steam ferry on the Port Townsend-Edmonds route and the newly re-boilered steam automobile-passenger ferry Seattle, operating on the Seattle-Bremerton route have sets of Eliminators fitted and are showing corrective results. Heavy electric loads of alternating current used aboard these ferries in combination with the brass and iron of the heavy reciprocating power plants, has caused much trouble on these boats until Eliminators were fitted.

August 3 the palatial yacht Haida, owned by Major Max Fleischmann of Los Angeles, was in Seattle en route to Alaska on her fourth annual cruise. Captain H. F. Long, master of this magnificent motor yacht reported continued success with the Eliminators and no trouble from paint scaling off the hull or corrosion of shafts and that the cores were continually being eaten away, showing that destructive electrolytic currents were present in the vessel.

August 5 the condenser aboard the Andrea Luckenbach was opened for inspection but no corrosion of tubes was found and the Eliminator sets fitted to her condenser and engines were one third eaten away.



Scale model of new terminal at Havre with S.S. Normandie and S.S. Ile de France alongside.

Gare Maritime at Le Havre

*French Line Building World's Most Modern Marine
Passenger and Cargo Terminal*

The French Line's new Gare Maritime at Le Havre, one of the most gigantic passenger and freight port terminals of its kind in the world, has been completed, and its formal opening will take place this summer. The station is 1,897 feet—well over a third of a mile!—in length, 148 feet wide, covers an area of five acres, and its construction required 27,000 cubic meters of concrete, 4,800 tons of steel and 9,700 tons of cement. Every possible modern mechanical device has been installed, which will result in saving much

time in embarking and debarking passengers, loading and unloading cargo. All facilities are in duplicate, each side being a complete unit in itself, the purpose of the builders being that two ships can be handled at the same time without interfering in the slightest with each other.

The great passenger halls are provided with newsstand, tobacco shop, florist shop, telephone-telegraph and cable-office, post-office and bar. Escalators, elevators and broad staircases expedite the passage from ship

to the boat-trains, right in the building. Ramps provide automobile circulation on three floors of the structure.

The 280-foot tower of the Gare will be visible far out in the Bay of Havre. The side facing the sea will have a device, luminous at night, which will show the movement of the tide.

The French Line and the State Railway have combined in this project to further improve their service to their patrons.



Scale model of new terminal at Havre with S.S. Normandie and S.S. Ile de France alongside.

Pacific Marine Book Reviews

*Realizing that Many a Mariner—Ship Operator—Ship Owner or Engineer
like Chaucer's Clerk "Would liefer have at his beddes head,
Twenty bookes clad in black or red"*

BOY AND GIRL TRAMPS OF AMERICA, by Thomas Minehan. 267 pages, bound in ultramarine cloth with gold stampings. Published by Farrar & Rinehart, Inc., New York. Price \$2.50 net.

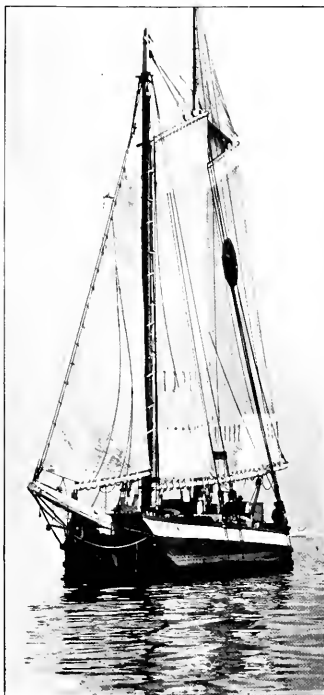
Here is a book which will give you pause, shock you into the realization that the appalling tragedy of our depression fell not on the farmer, the laborer, the white-collar man, nor the capitalist, but on the boys and girls of America. The author is a young professor of sociology, who dressed himself in shabby clothes and took to the road to find out what was happening there. In the preface to this absorbing sidelight on contemporary United States he says:

"I had seen pictures of the Wild children in revolution-racked Russia; I had read of the free youth of Germany after the World War. I knew that in every nation following a plague or invasion, children left without parents and homes became vagrants. Before my own experience, I had always believed that in America we managed things better. And yet in the face of economic disorganization and social change our own youth took to the high road.

"These were flesh and blood youngsters, who should have been in high schools and homes, and were in box cars and jungles . . . boys and girls, children really, dressed in overalls or army breeches and boys' coats and sweaters, looking, except for their rags, like a Girl Scout club on an outing."

This is not a novel, or a story . . . it is the authentic record, plentifully supported by tables of statistics that paints an incredible story of what is happening to youth in this land of the free.

STARS TO STEER BY. By Helen



Lights and shadows on shallow waters with muddy bottoms.

Follet. 263 pages, bound in navy blue cloth with black stampings. Published by The MacMillan Company, New York, N.Y. Price \$2.50, net.

If you like a detached style; if you have ample imagination, if you love the smell and swell of the sea; if you like stories of strange places where nothing much happens, if you like a story without a plot, you will like "Stars to Steer By." It is the

story of a woman and her adolescent daughter "tramping" about the oceans of the world in search of a sailing ship.

THE OLDEST INHABITANT. By Eden Philpotts. 302 pages, bound in orange cloth with black decoration. Published by the MacMillan Company, New York. Price \$2.50 net.

Grandfer is the oldest inhabitant of a little Devonshire village. His oldest friend says of him "a artfuller and more utter devious and downy old man than he is don't draw breath."

In his artful and devious fashion Granfer allies himself with providence to arrange the lives of nine people. Only Mr. Philpotts could give us such an inimitable picture of the sly and circuitous delvings of this oldest into the affairs of his family and friends. The tale is witty and readable, as well as being a penetrating revelation of the psychology of the village ancient.

WITHIN A YEAR. By Faith Baldwin. Bound in green cloth. Published by Farrar and Rinehart, Inc., New York. Price \$2.00, net.

Almost anything may happen within a year, but during the chaotic year 1933 more incredible things happened than in ordinary years. The book covers the first year of the "New Deal"—from March 1933 to March 1934, telling in author's entertaining manner many things which did happen, and many which might have happened, during the swift drama of the bank holiday and the months that followed. A shrewd, witty, smooth moving picture of the lives of contemporary people against a contemporary background.



Marine Insurance

A Critique of American Maritime Collision Law

(Continued from Page 274)

always signifies a change of course to port; under inland rules it signifies a starboard to starboard passing whether or not a change of course is made.

(10) The regular lights for a vessel at anchor; the danger signal (four or more short blasts).

Now if we accept the indictment that the average navigator's knowledge of the collision rules is subject to improvement, there are several practical suggestions that might be carried out to contribute to that very desirable end. To begin at the source, the American mariner gets his rules from pamphlets published and distributed by the Department of Commerce, and these pamphlets contain the international, inland, and pilot rules in their bald entirety, with no suggestion of comment or court interpretation. It would seem entirely practicable for the pamphlets to set forth not only the original rules, but such court interpretation as may have subsequently modified or clarified their meaning, as, for example, the definition of moderate speed in connection with rule 16. It is possible that the supervising inspectors could provide such information under the same authority which now enables them to promulgate and publish pilot rules, and diagrams of passing situations. The rules are now so old that practically every debatable provision has already been construed by the courts; any new rulings might easily be made common knowledge through the medium of the Notices to Mariners put out by the U. S. Hydrographic Office and distributed weekly to merchant and naval ser-

vice alike. The writer recalls a very effective circular letter sent out by the company which employed him shortly after the Beaver-Selja decision, emphasizing to the officers of the line the importance of stopping the engines in accordance with Art. 16. Vessels of the Navy usually have in the wardroom library a book of comment on the rules, such as La Boyteaux's "Rules of the Road at Sea", Parson's "Collisions", or at least the chapter in Knight's "Seamanship" on the subject, but the problem is to get officers interested in reading them.

A second suggestion is that the type of examination given by the steamboat inspectors and by naval examining boards be changed as necessary to test the candidate's ability to apply the rules rather than merely to remember their wording. Given a set of conditions, "what would you do?" should be more and more the form of question asked. In this connection, the individual oral examination in which the examiner places small wooden ship models in various situations and requires the candidate to designate promptly the proper action is undoubtedly the most effective system yet devised.

Third, and by no means least, it might be well to keep the navigator on his toes by subjecting him to an occasional check test; the master mariner at least every five years when he comes in to renew his license, and the naval officer when he returns to sea from his tour of shore duty. Such a procedure would work no hardship on the conscientious officer who really keeps posted; and it might bring to light some of the

most unsuspected but none the less dangerous cases of ignorance.

That such cases actually exist may be illustrated by a surprising experience of the writer with the veteran skipper of an Alaska passenger liner. The latter was observed one day to back his vessel out of the blind slip between two long piers without blowing his whistle, even to the extent of the customary short toot when casting off his lines. In deference to the high standing of the captain, who was the commodore of his company, the matter was regarded as an oversight, but when the offense was repeated the next day it was considered advisable to take some restraining action. So he was followed to a wharf a mile down the water front, boarded, and confronted with his perfidy. When he had recovered sufficiently from the shock of having his action questioned, his defense was that he did not consider the long blast signal required when moving from his berth merely to go to another part of the harbor, but only when starting on a regular voyage to Alaska. It had no doubt been thirty years or more since his examination for a master's license, but he was so positive that he was within his rights that he had the third mate vainly scurrying all over the ship to locate a copy of the pilot rules to prove it. It was the most unkind cut of all to tell him that he had not only jeopardized his license by backing unannounced into crowded harbor traffic, but in addition was subject to a fine for not having two copies of the pilot rules or board.

(To Be Continued)

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Longshoremen Casualties and Some Unusual Hazards

Recent surveys indicate that an average of about 1750 longshoremen were employed each day in the San Francisco Bay during the calendar year of 1933, however, there were 24 injuries reported to the A.P.B. This means that at least every other longshoreman working in the Harbor in 1933 received an injury. In 1927 with only partial reporting of accidents, more than 1800 longshoremen received reportable injuries. In Los Angeles and Columbia River districts only half as many longshoremen are employed as in San Francisco, yet in 1929 there were 2,000 longshoremen injured in Los Angeles; and 574 in 1933; on the Columbia River in 1929 there were 1300 reportable injuries, and 479 in 1933. Considerably more than half of the reportable injuries result in disablement, and practically all of the injuries result in medical expenses and expensive delays.

● Non-Existent Fatalities

Case (1) Loading lumber from car; starboard guy was not properly made fast and gave way when load was hoisted knocking a longshoreman off car onto dock.

Case (2) Empty slingboard, while being returned from ship's hold, struck and lifted unsecured strong-back out of sockets dropping it into hold. Three men badly injured, one of whom died later.

Case (3) Wearing canvas gloves while descending hold-ladder; gloves slipped off rungs—fell into hold.

Case (4) Climbing jacob's ladder overside with his hands on rounds of ladder; when almost to the top round broke and climber fell backwards. While falling he struck spring line with his thighs, did a giant swing, flying clear of a barge and landed on top of a negro stevedore who was standing on deck of a tug lying alongside the barge. Both climber and negro regained consciousness about the same time. The negro's first words were "White man what you all trying to do?"

● Dock Pavement Holes

One chief stevedore recently stated that he had discovered a new hazard and cause for accident on his dock, viz: "Pitted and uneven pavement on the dock." The discovery emanated

in this manner: He read in an accident report that "handle of a four-wheel truck fell and fractured a man's big toe". The chief stevedore did not believe that handles of four-wheel trucks fell. He reasoned, that they are dropped; hence he decided to investigate. He found that one of the men (not the injured) was pulling a loaded four-wheeler and not making much time on account of the heavy load, a jitney, that came up from behind, started pushing; the man in front did the steering. All went well until one front wheel of the truck dropped into a young chuck hole which jerked the handle from the man's hands, threw it sideways and when it landed, the man's toe was in the way. Since that time all holes on this dock have been repaired. It certainly paid to investigate this accident and should be an incentive to other supervisors to find out what actually happens when an accident occurs.

[Accident Prevention News Letter]



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Marine Insurance Department

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(Marine Department)

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General Agent

302 California Street

Marine Insurance Notes

When George L. Parrish, Pacific Coast manager of the Marine Office of America resigned recently, the heads of the organization appointed Fred Galbreath as manager of the Pacific Department with headquarters at San Francisco, and Paul A. Carew as manager of the Northwest Department with headquarters at Seattle. This action makes a new separate department of the Seattle

office, which had heretofore been managed as a branch of San Francisco. The new department covers Oregon, Washington, British Columbia, and Alaska. Mr. Parrish has been appointed assistant general agent by Rolph, Landis, and Ellis of San Francisco.

Charles L. Tyner, chairman of the board of the Home Insurance Com-

pany of New York, recently retired on reaching the age of 70 after 45 years service with his company.

Admiralty Attorney Daniel Webster Evans of San Francisco, died August 6 as the result of an automobile accident at Hollywood.

On August 10 the Atlantic Mutual Insurance Company elected the following officers: President William D. Winter; first vice president

ROY C. WARD

GEO. B. DINSMORE

WILFRED PAGE

GEO. E. BILLINGS CO.

308-12 CALIFORNIA STREET, SAN FRANCISCO

Garfield 3646

INSURANCE

BROKERS FOR THE ASSURED—AVERAGE ADJUSTERS

J. Arthur Bogardus; second vice president Percy G. Craig.

On June 21 the Norddenschers Lloyd liner Dresden went ashore on the Coast of Norway. By June 26, careful survey had established that she could not be salvaged, and by June 29, the hull underwriters had settled on the policy for 350,000 pounds, practically a million and three quarters of dollars. The liability of the London market was approximately 300,000 pounds including re-insurance.

Up to February, 1934, the Japanese Seamen's Union had provided unemployed Union members with 887,000 days of work. Recently this system was converted into a mutual relief scheme which was put into operation April 1. The cost of mutual relief is estimated at 180,000 yen, one-third of which will be borne by seamen, and two-thirds by the government. It is intended that this will grow into a system of unemployment insurance.

On July 29, Walter Wood Parsons, president of the Atlantic Mutual Insurance Company, passed away at his home at Great Neck, Long Island, aged 60 years. All his business life had been in marine insurance, and average adjustment activities. He joined Atlantic Mutual in 1909 as assistant to the president of the company. In 1911 he was made a vice

president, in 1915 first vice president, and in 1930, president. He was a vice president of the American Bureau of Shipping, member executive committee Seamen's Savings Bank, director American Institute of Marine Underwriters, director of the Board of Underwriters of New York, and member executive committee of the New York Chamber of Commerce.

The London underwriters carry \$250,000 insurance on the hull of the Libby, McNeil & Libby steamer, *Ostego*, which stranded in Bristol Bay recently, and then got off on her own power. She had aboard 700 cannery workers returning home from the season's work, and a cargo of canned salmon insured with San Francisco underwriters for approximately a million dollars. She was formerly the German steamer *Prince*

Eitel Freidrich, built in Hamburg in 1902.

The Home Insurance Company of New York is expanding its marine and inland marine departments at the Portland office, and J. C. Selz of the San Francisco office has been transferred to help out in the Oregon metropolis. Special agent Walter Baumhefner of San Francisco has been sent to Los Angeles to assist Robert Cambell, marine agent for Southern California, Arizona and New Mexico.

In view of recent local disputes as to the justice of salvage awards, it is interesting to note that at the recent meeting of the International Salvage Union in Scherreningen, Holland, the outstanding topic of discussion was the financial difficulties under which salvage firms labored, and the seeming impossibility of getting sufficient compensation on good jobs to take care of losses on poor or difficult jobs. An appeal was made to the national and international association of underwriters for consideration and study of this problem.

Freights, Charters, Sales

August 15, 1934.

The end of active strike of the Maritime Unions and the return of the men to work pending the arbitration of all differences has resulted in a general firming up of rates in all directions. There has been no wild rush for tonnage nor have there been spectacular flurries of chartering. Throughout the world freights have strengthened and this coast is no exception. Tramp tonnage is not plentiful and consequently the heavy volume trades such as wheat from British Columbia to U. K. has felt the advance more definitely than others. This is true of both parcel and full cargo business.

19/6 is being freely bid and 20/- indicated for usual ports for full cargo.

Oriental lumber is inactive but slightly firmer at \$6.00 to \$6.75 per M for Japan and China according to discharging ports.

A number of steamers have been closed for the inter-coastal business.

both grain and lumber on time charter basis.

Charters Reported

Grain and General Cargo: British steamer *Simonburn*, British Columbia/London 18/6; Norwegian motorship *Tyr*, British Columbia/Manchester, p.t.; British steamer *Filleigh*, British Columbia/Immingham and Hull, p.t.; British steamer *Harlingen*, British Columbia/London and Newcastle, p.t.; British steamer *Tilington Court*, British Columbia and Columbia River to Irish ports, p.t.; British steamer *Anglo*—, British Columbia/Hull or Immingham, f.i.o., 19/9.

Lumber: Greek steamer *Ekatontarchos Dracoulis*, British Columbia to Australia, p.t.; British steamer *Dunrobin*, same.

Time Charter: Norwegian motorship *Brand*, one trip, delivery North Pacific, redelivery China-Japan, 6/-; American steamer *Golden Kauri*, one round voyage intercoastal, delivery

(Page 290, Please)

GEO. E. BILLINGS

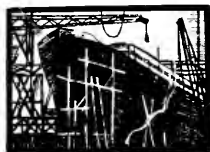
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American Shipbuilding

LARGEST ALL-WELDED MERCHANT VESSEL

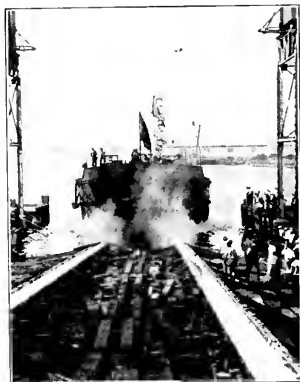
With the launching of the Motor Tanker Poughkeepsie-Socony on August 3rd, at the Staten Island Plant of United Dry Docks, Inc., the American merchant marine witnessed perhaps the most significant challenge of half a century to ships of less modern design. This vessel, one of the initial units in the Socony-Vacuum Oil Company's \$5,000,000 shipbuilding program, is the largest all-welded merchant vessel ever built in the United States and probably in the world.

The new vessel was christened, in the presence of a distinguished company of officials, naval architects and other guests, by Miss Elizabeth M. Sheets, daughter of Harold F. Sheets of Montclair, N.J., a director of the Socony-Vacuum Oil Company and a member of its Executive Committee.

Nicholas J. Pluymert, Socony-Vacuum naval architect, today declared his conviction that the introduction of the electrically-welded ship into these larger categories offers the most drastic challenge in their history to the older type riveted vessel.

The company's shipbuilding program, in which three new vessels have been added to the fleet in the last few weeks and still more are to come, represents some \$5,000,000 additional investment in the growing volume of the corporation's business.

Poughkeepsie-Socony is a tanker of typical Socony-Vacuum "canal" characteristics; she is of 1242 gross tons, 260 feet long overall, with 40 foot beam and 14 foot depth. Her cargo capacity is 712,500 gallons and, in addition, she carries some 300 barrels of bunker fuel. Her power plant consists of two diesel engines of air-injection type, aggregating 750 brake horse power and driving twin screws. For facility in maneuvering the confined spaces of



Launching Poughkeepsie-Socony.

the New York State Barge Canal, she is equipped with twin rudders. The ship has normal speed of about 10 knots and carries a crew of eighteen officers and men.

This latest addition to the great Socony-Vacuum fleet, which has more vessels than any fleet in the United States and ranks third in gross tonnage, will transport Socony gasoline in the Canal-Great Lakes trade where, in normal transit, she will be called upon to pass through locks perhaps 2600 times in a single year.

COAST GUARD VESSEL LAUNCHED

United States Coast Guard Cutter No. 151, Onondaga, built for service out of Seattle, Washington, was launched on August 6 at the Defoe Boat and Motor Works, Bay City, Michigan.

The craft has a displacement tonnage of 1000, geared turbine drive, B. & W. boilers, and 1500 horsepower. She is 165 feet long, and was built at a cost of \$500,000.00. Her keel was laid November 30, 1933.

As soon as funnels and movable equipment are installed she will be taken to the West Coast.

LLOYD'S REGISTER SHOWS SHIPBUILDING RETURNS

The returns compiled by Lloyd's Register of Shipping, which take into account only vessels of 100 tons gross and upwards, the construction of which has actually commenced, show that there were 288 merchant vessels of 1,216,340 tons gross under construction in the world at the close of the quarter ended June 30, 1934.

Of these, Great Britain is building the largest gross tonnage with 587,142 gross tons; while second and third places are occupied by Japan and France, with 137,280 and 104,500 gross tons respectively. The United States comes ninth on the list, with 27,581 gross tonnage; being surpassed by Germany, Denmark, Holland, Sweden and Italy (in the order named) in addition to the three named above.

This tonnage represents in Great Britain, 131 steamers and motorships; in Japan, 4 steamers and 25 motorships; in France, 8 steamers and 3 motorships; in Germany, 18 steamers and 11 motorships; in Denmark, 6 steamers and 12 motorships; in Holland, 2 steamers and 11 motorships; and in Italy, 1 steamer and 4 motorships. The United States, on the Atlantic coast, is building two steamers with a gross tonnage of 18,600, and six motorships with a gross tonnage of 3,319. In addition to this the United States is credited with three steel barges with a gross tonnage of 2,662, also building on the Atlantic seaboard.

Of the merchant tonnage building in the world Great Britain and Ireland are building nearly one-half, with a gross tonnage of 587,142. Of this total 497,064 gross tons are being constructed for their own use; 25,312 for use in their dominions; 13,800 for China; 130 for France; 3,456 for Mexico; and 47,380 for countries not stated or for sale.

(Please turn to Page 289)

Progress of Construction

The following Report Covers the Shipbuilding Work in Progress at the Leading Shipyards of the United States as of August 1, 1934

Pacific Coast

BEIG SHIPBUILDING CO.
Foot of 26th Avenue, N.W.,
Seattle, Wash.

DRYDOCK, PAINT, MISCELLANEOUS: M. A. Discoverer, M. V. Mithof, M. V. Nez Perce III, M. V. Narrona, M. V. Unimak.

BETHELEHEM SHIPBUILDING CORPORATION, LTD.
(Union Plant)
San Francisco

DRYDOCK, PAINT, MISCELLANEOUS: Tug Gov. Markham, Dredge Major Tilden, S.S. Halo, Tug Standard No. 1, U.S. Tender Inspector, S.S. Massmar, S.S. Dorothy Alexander, S.S. President Taft, S.S. Portmar, S.S. H. F. Alexander, S.S. Mammal, S.S. Yale, S.S. K. R. Kingsbury, S.S. District of Columbia, A.T. & S.F. Barge No. 6, S.S. W. S. Rheem, S.S. Golden State, S.S. Eldorado.

GENERAL ENGINEERING AND DRYDOCK CO.
Foot of Fifth Avenue
Oakland, Calif.

DRYDOCK, PAINT, MISCELLANEOUS: M.S. Santa Catalina, S.S. Cuzco, S.S. Makua, Pile Driver Barge, Derrick Barge Tacoma, Barge Freethy No. 22.

LAKE UNION DRYDOCK & MACHINE WORKS
Seattle, Wash.

NEW CONSTRUCTION: Hull No. 102, Atlanta, U.S. Coast Guard patrol boat; keel laid March 23, 1934; launched June 11, 1934; estimated delivery, Sept. 20, 1934.

Hull No. 103, Ariadne, U.S. Coast Guard patrol boat; keel laid March 23, 1934; launched July 1, 1934; estimated delivery, October, 1934.

Hull No. 104, Cyane, U.S. Coast Guard patrol boat; keel laid June 12, 1934; estimated launching August 25, 1934; estimated delivery Nov. 1, 1934.

THE MOORE DRYDOCK CO.
Oakland, Calif.

DRYDOCK, PAINT, MISCELLANEOUS: Jackie, Dakotan, Tillamook, Transbay Barge No. 463, Brunswick, Elizabeth, Oregonian, Barge Freethy No. 22, Samoa, Willboro, Lake Frances, Bridge Builder Barge No. 25, Olinda, Golden Dragon, Golden Bear, Caddopeak, J. B. Stetson, Golden Tide.

PRINCE RUPERT DRYDOCK AND SHIPYARD
Prince Rupert, B.C.

DRYDOCK, PAINT, MISCELLANEOUS: 2 fishing boats, 34 ship repair

jobs not requiring docking; 50 commercial jobs.

THE PUGET SOUND NAVY YARD
Bremerton, Washington

NEW CONSTRUCTION: U.S.S. Worden (Destroyer No. 352), keel laid Dec. 29, 1932; LBP, 334'; beam 34'2½"; loaded draft, 10'10"; geared turbine engines; Yarrow type water-tube boilers.

U.S.S. Unshing (Destroyer No. 376); LBP, 334'; beam, 35'½"; loaded draft, 10'10"; geared turbine engines; express type boilers.

U.S.S. Perkins (Destroyer No. 377); LBP 334'; beam, 35'½"; loaded draft, 10'10"; geared turbine engines; express type boilers; building under provisions of National Industrial Recovery Act.

DRYDOCK, PAINT, MISCELLANEOUS: Arizona, Nevada, Pennsylvania, Utah, Bushnell, Haida, Partridge, Mahopac, Tatnuck, Challenge, Wando, Eagle 57.

Care and Preservation (out of Commission): Arnostook, Jason, Kearsarge, Patoka, Pawtucket, Prometheus, Pyro, AS-8 (ex-Savannah).

TODD SHIPYARD CORPORATION
Seattle, Wash.

S.S. Rappahannock, general alterations and repairs.

UNITED STATES NAVY YARD
Marine Island, Calif.

NEW CONSTRUCTION: Smith, U.S. torpedo boat destroyer (DD378); 340 ft. long, 35 knots speed; standard displacement, 1500 tons, estimated completion date, Feb., 1935.

Preston, U. S. torpedo boat destroyer (DD-379); 340 ft. long; 35 knots speed; standard displacement, 1500 tons; estimated completion date, May, 1935.

Preparation of plans and purchase of material in progress. Practically all of the structural steel has been purchased and delivered. The lines have been fairied in the mold loft, and preparation of molds and fabrication of steel are proceeding. Neither of the vessels has been laid down, nor have dates yet been set.

Atlantic, Lakes, Rivers

AMERICAN BRIDGE COMPANY
Pittsburgh, Pa.

NEW CONSTRUCTION: Repairs to 20 barges for Carnegie Steel Co.

BATH IRON WORKS
Bath, Maine

NEW CONSTRUCTION: Hull No. 154, Dewey (DD 349), torpedo boat destroyer for U.S. Navy; keel laid Dec. 16, 1932; launched July 28, 1934; estimated delivery, September, 1934.

Hull No. 159, Drayton (DD 366), torpedo boat destroyer, U.S. Navy; keel laid, March 20, 1934; launching, no date set; estimated delivery November, 1935.

Hull No. 160, Lamson (DD 367), torpedo boat destroyer, for U.S. Navy; keel laid, March 20, 1934; launching, no dates set; estimated delivery, January, 1936.

BETHELEHEM SHIPBUILDING CORPORATION
Fore River Plant,
Quincy, Mass.

NEW CONSTRUCTION: Heavy Cruiser CA-29, Quincy, 10,000 tons. Estimated delivery January, 1936.

Heavy Cruiser CA44, Vincennes, 10,000 tons. Estimated delivery January, 1937. Keel laid January 2, 1934.

Four Torpedo Boat Destroyers: DD-360, Phelps, keel laid January 2, 1934; estimated delivery, December, 1935.

DD361, Clark, keel laid January 2, 1934; estimated delivery February, 1936.

DD362, Moffett, keel laid, January 2, 1934; estimated delivery April 1936.

DD363, Balch, estimated keel laying, April, 1934; estimated delivery, June, 1936.

CHARLESTON DRYDOCK CO.
Charleston, S.C.

NEW CONSTRUCTION: Order for plans for sternwheel river steamer for Krajewski-Pesant Mfg. Co. to be shipped knock-d-down to Venezuela.

Contract for one 5,000-barrel all-welded steel tanker for Messrs. Thurber & Powers of Boston.

COLLINGWOOD SHIPYARDS, LTD.
Collingwood, Ontario

DRYDOCK, PAINT, MISCELLANEOUS: S.S. Robert P. Durham.

DEFOE BOAT AND MOTOR WORKS
Bay City, Mich.

NEW CONSTRUCTION: U. S. Coast Guard Cutter No. 151, displacement tonnage 1000; keel laid, November 30, 1933; launched Aug. 2, 1934; estimated delivery, Sept. 1934.

U. S. Coast Guard Cutter No. 152, displacement tonnage 1000; geared turbine drive; B. & W. boilers; 1500 h.p.; keel laid Dec. 15, 1933; estimated launching Sept. 5, 1934; estimated delivery, Oct. 1934.

THE DRAYO CONTRACTING CO.
Engineering Works Dept.,
Pittsburgh, Pa., and Wilmington, Del.

NEW CONSTRUCTION: Contract No. 872, Hull No. 997, one diesel sternwheel towboat of 91 gross tons.

Contract No. 983, Hull No. 1151, one

steel floating drydock, Bureau of Yards and Docks, Navy Dept., of 4220 gross tons.

Hulls Nos. 1163, 1164; two 750 h.p. twin screw diesel towboats for stock.

Hulls Nos. 1186 to 1193, eight flush deck S&G barges 130'x28'x7'6" for stock.

Hulls Nos. 1194 to 1201, eight flush deck S&G barges 130'x24'x6'6" for stock.

This makes a total of twenty hulls under contract, with a total gross tonnage of 8571.

ELECTRIC BOAT CO. Groton, Conn.

NEW CONSTRUCTION: Hull No. 19, fleet submarine, Shark, (SS174); L.B.P. 238'; beam, 25'; standard displacement, 1315 tons; keel laid, October 24, 1933; estimated launching, April, 1935.

Hull No. 20, Tarpon (SS175); L.B.P. 238'; beam, 25'; standard displacement, 1315 tons; keel laid, Dec. 22, 1933; estimated launching, February, 1935; possible delivery, November, 1935.

THE FEDERAL SHIPBUILDING AND DRYDOCK COMPANY

Kearny, N. J.

NEW CONSTRUCTION: Two destroyers, DD368 Flusser and DD369 Reid for the U. S. Navy, estimated completion dates—Flusser, Nov., 1935; Reid, February, 1936.

Two barges for undisclosed owner; hulls Nos. 132, 133; L.B.P. 205'; beams, 39'; depths, 14'13"; 825 D.W. tons; keel laid April 13, 1934.

Hull No. 131, Hygrade No. 10, welded oil barge; keel laid Apr. 13, 1934; launched, May 18, 1934; delivered, June 5, 1934.

Hull No. 132, undisclosed owner; keel laid, May 15, 1934; launched June 19, 1934; delivered, July 2, 1934.

INGALLS IRON WORKS Birmingham, Ala.

NEW CONSTRUCTION: Hulls Nos. 73 and 74, river pontoons; keels laid Nov. 1933; L.B.P. 140'; beam, 8'.

Hull No. 82, Oil Barge, keel laid May 8, 1934; L.B.P. 200'; beam 40'; loaded draft, 8'6"; launched Aug. 1, 1934.

MANITOWOC SHIPBUILDING CO. Manitowoc, Wis.

NEW CONSTRUCTION: Three U.S. Coast Guard Patrol Boats, Hull Nos. 277 Dione; 278 Electric; and 279 Pandora; L.B.P. 145'; beam 25'3"; loaded draft, 8'6"; speed loaded, 18 knots; Diesel engines, 1200 S.H.P.; all three launched June 30, 1934.

Hull No. 280, Lighthouse tender, Tamarack, L.B.P. 111'8"; beam 29'; loaded draft, 7'; speed loaded 10 1/2 knots; diesel electric, 450 S.H.P. No dates set.

THE MARIETTA MANUFACTURING COMPANY

Point Pleasant, W. Va.

Three 165' Patrol Boats for U.S. Coast Guard, Washington, D. C., Nike, Nemesis, and Triton, 25'3" beam, 13' 2" depth; will draw approximately 7'; twin-screw type, propelled by two 650 horsepower Winton Diesel engines. Total displacement of each vessel approxi-

mately 300 tons; required speed 16 knots—now under construction; estimated delivery dates, Oct. 9, 1934; Oct. 29, 1934; and Nov. 18, 1934 respectively; Nike launched June 23, 1934; Nemesis launched, July 7, 1934. Triton to be launched during August.

Two 132'x35'x10' steel covered cargo barges of 850 tons capacity for stock account completed.

Two Side Wheel Self-Propelled 34" Pipe Line Dredges of the Dustpan Type. Total contract price \$1,016,500.00. Delivery in 180 and 210 days—Length, molded, 270'0"; length overall, 277' 1 1/2"; breadth, molded, 50'0"; breadth overall, 84'8 3/8"; depth, molded, 8'6"; depth midships, 9'3", first keel laid May 2, 1934; second keel laid June 28, 1934.

One (twin screw diesel driven) towboat for U. S. Engineer's office, Vicksburg, Miss.; length molded 176'; breadth, 38'; depth 8'6"; two 650 H.P. diesel engines; two 75 and one 15 K.W. diesel driven generating sets; contract price \$314,750.00, delivery at Vicksburg, Miss., in six months.

MIDLAND BARGE COMPANY (Subsidiary of Treadwell Construction Company.)

Midland and Erie, Pa.

NEW CONSTRUCTION: Steel Barge 100'x24'x7". Two steel launches, 31 ft. by 8 ft. 6 ins. by 2 ft. 6 ins. for U. S. Engineers, Memphis, Tenn. Four barges, 100'x26'x6'6" for stock.

NASHVILLE BRIDGE CO., Nashville, Tenn.

NEW CONSTRUCTION: Hull No. 286, Snag boat for U.S. Government, keel laid April 1, 1934; estimated launching, June 24, 1934; estimated delivery, November, 1934; L.B.P. 170'; beam 38'; loaded draft 4 1/2'; 600 I.H.P. engine; 2 boilers.

Hulls No. 287, 288, 289, three deck barges for stock, 100'x26'x6 1/2"; completed, July 7, 1934.

Hull No. 290, Derrick barge; keel laid May 25, 1934; launched June 25, 1934; L.B.P. 62'; beam 34'; loaded draft 5'; building for T.V.A.

Hulls Nos. 291, 292, 293, three deck barges; keels laid July 15, 1934; estimated launching Aug. 15, 1934; L.B.P. 123'; beam 29'; loaded draft 7 1/2'; for stock.

Hulls Nos. 294, 295, two deck barges; for stock; estimated keel laying, July 25, 1934; estimated launching, Sept. 1, 1934; L.B.P. 100'; beam 26'; loaded draft 6 1/2'.

Hull No. 296, towboat; keel laid July 3, 1934; estimated launching, Aug. 1, 1934; L.B.P. 50'; beam 12 1/2'; loaded draft 4 1/2'; building for T.V.A.

NEWPORT NEWS SHIPBUILDING & DRYDOCK CO.

90 Broad Street, New York

NEW CONSTRUCTION: II 359 aircraft carrier CV5, Yorktown, for U. S. Navy; keel laid May 21, 1934; estimated delivery, August, 1936.

H360 aircraft carrier, CV6, Enterprise, for U.S. Navy, estimated keel

laying, Nov. 5, 1934; estimated delivery, December, 1936.

Ranger, hull 353, aircraft carrier No. 4 for U. S. Navy, keel laid September 2, 1931, launched February 25, 1933, estimated delivery June 4, 1934.

THE NEW YORK SHIPBUILDING COMPANY

Camden, N. J.

NEW CONSTRUCTION: Contract for four destroyers: Hull No. 408, Porter (DD356); Hull No. 409, Selfridge (DD-357); Hull No. 410, McDougal (DD-358); Hull No. 411, Winslow (DD-359); of 1850 tons each; keels laid, Dec. 1933.

Two light cruisers: Hull No. 412, Savannah (CL42), Hull No. 413, Nashville (CL43), of 10,000 tons each for the U. S. Navy Department; estimated delivery dates are as follows: DD356, Porter, Dec., 1935; DD357, Selfridge, Feb., 1936; DD358, McDougal, Apr., 1936; DD359, Winslow, June, 1936; CL42, Savannah, Aug., 1936; CL43, Nashville, Dec. 1936.

Oil tanker, No. 414, and oil tanker No. 415, for Standard-Vacuum Transportation Company, 15,000 tons D.W. each; keels laid March 26, 1934; delivery early 1935.

THE PUSEY & JONES CORP.

Wilmington, Del.

NEW CONSTRUCTION: Nos. 56, Algonquin; 57, Conanche; and 58, Mohawk; cruising cutters, building for Treasury Department, U. S. Coast Guard Service; L.B.P., 150'; beams, 36'; loaded draft 13'; speed loaded, 15 miles per hour; turbine engines, 1500 S.H.P.; two watertube boilers, 325 pounds pressure, construction schedule; No. 56, keel laid, January 16, 1934; launched July 25, 1934; estimated delivery, September 29, 1934; No. 57, keel laid January 17, 1934; estimated launching, September 6, 1934; estimated delivery, November 2, 1934; No. 58, keel laid, February 1, 1934; estimated launching, September 21, 1934; estimated delivery, December 8, 1934.

SPEEDEN SHIPBUILDING CO.

Baltimore, Md.

NEW CONSTRUCTION: Hull No. 274 (Diesel), Electric, wrought iron hull, Boarding Cutter, for the U. S. Public Health Service, Staten Island, N. Y.; keel laid March 15, 1934; estimated launching, August 8, 1934; estimated delivery Dec. 27, 1934; L.B.P. 100'8"; beam, 23'; loaded draft, 10'; speed loaded, 12 knots; two 360 B.H.P. Fairbanks Morse engines. Contract received Jan. 11, 1934.

UNITED DRYDOCKS, Inc. Staten Island, N.Y.

NEW CONSTRUCTION: DD364, destroyer Mahan, estimated delivery, Oct. 1935, and DD365, destroyer Cummings, estimated delivery, Dec., 1935, for U. S. Navy.

No. 822, tanker New Haven Socony, keel laid February 1, 1934; launched June 1, 1934; delivered July 19, 1934.

Hull No. 823, tanker **Plattsburg** Socomey, keel laid, March 6, 1934; launched June 29, 1934; delivered August 2, 1934.

Hull No. 824, tanker **Poughkeepsie** Socomey, keel laid April 3, 1934; launched August 3, 1934; estimated delivery September 5, 1934; Data on all three above: L. B. P., 252'; Beam, 40'; Depth, 14'; D.W. tons, 1200; 2 Diesel engines of 375 BHP each, building for Standard-Vacuum Transportation Co.

Hulls No. 825, 826, 827, Globe 10, Globe 15, and Globe 20 & 828; Richfield No. 21, barges, the first three for Nelson and Huszagh, keels laid, May 17, 19, and 21, respectively; launched July 10 and 27, and August 8 respectively; delivered July 13, 28 and August 10 respectively; 100'x30'x8"; the last for Newton Creek Towing Co.; keel laid, May 16; launched July 10; delivered July 15; 280'x40'x12'6"; built at Crane, 27th St. Plant, Brooklyn, N.Y.

UNITED STATES NAVY YARD Boston, Mass.

NEW CONSTRUCTION: Destroyer DD370, Case, L.B.P. 334'; beam 35'; estimated delivery, Feb. 1936.

Destroyer DD371, Conyngham, L.B.P. 334'; beam 35'; estimated delivery, May, 1936.

Destroyer DD354, Monaghan, L.B.P. 334'; beam 34'2"; keel laid November 21, 1933; estimated delivery, May, 1935.

Destroyer DD351, Macdonough, keel laid May 15, 1933, L.B. P. 334'; beam 34'2"; estimated delivery, March, 1935; for the U.S. Navy.

UNITED STATES NAVY YARD Charleston, S.C.

NEW CONSTRUCTION: U.S.S. Charleston, gunboat (PG51) for U.S. Navy, building period assigned by Navy Department, Nov. 1, 1933, to Feb. 1, 1936. Work started Feb. 1, 1934.

Coast Guard Harbor Cutters 61, 63, and 64; work started Feb. 1, 1934; keels laid June 8, 1934.

One Coast Guard Cutter (2000 tons). No dates set.

UNITED STATES NAVY YARD New York, N. Y.

NEW CONSTRUCTION: Hull No. 350, Hull, destroyer; keel laid, March, 1933; no further dates set; L.B.P. 334'; beam, 34'2"; standard displacement, 1500 tons; geared turbine engines; express type boilers.

Hull No. 353, Dale, destroyer, dimensions same as above; keel laid, February 10, 1934; no further dates set.

Hull No. 41, Brooklyn, light cruiser, no dates set; L.B.P. 600'; beam 61'8"; standard displacement, 10,000; geared turbine engines; express type boilers.

Hull No. 50, Erie, gunboat, no dates set; L. B. P. 308'; beam, 41'; standard displacement, 2000 tons; geared turbine engines; express type boilers. building for U.S. Navy.

UNITED STATES NAVY YARD Philadelphia, Pa.

NEW CONSTRUCTION: Philadelphia (CL41), light cruiser, 10,000 tons, length overall 608'4"; breadth 61'9" extreme; depth 34' at side; estimated completion, Nov., 1936.

Minneapolis (CA36), heavy cruiser, 10,000 tons, length overall 607'6"; breadth 59'6" molded; depth 35'8";

completed June 20, 1934; placed in commission May 19, 1934.

Aylwin (DD355), destroyer, 1500 tons.

Cassin (DD372), destroyer, 1500 tons.

Shaw (DD373) destroyer, 1500 tons. For last three above: length overall 341'3"; breadth 34'11 1/2"; extreme; depth 23'2" at side; tentative delivery dates January, 1935, February, 1936, May, 1936, respectively; Aylwin launched July 10, 1934.

Four U. S. Coast Guard cutters to be delivered December 1935, February, 1936, April 1936, and June 1936, respectively; dimensions: L.B.P., 308'; beam, 41'3 3/4"; loaded draft, 2000.

UNITED STATES NAVY YARD Portsmouth, N. H.

NEW CONSTRUCTION: S.S. 172, Porpoise; keel laid, October 27, 1933; estimated delivery, Feb. 1936, SS 173, Pike, keel laid, Dec. 20, 1933 estimated delivery, May, 1936; L.B.P. 289'-0"; beam 24'-11 1/4"; loaded draft 13'-9"; diesel electric engines.

Coast Guard Harbor Cutter 62 Hudson; estimated delivery, Nov. 1934; L.B.P. 104'-0"; beam 24'-0"; loaded draft 10'-6"; diesel electric engines.

UNITED STATES NAVY YARD Portsmouth, Va.

NEW CONSTRUCTION: Torpedo Boat Destroyer Tucker (DD374) for U.S. Navy, 341 ft. long; beam 35'; loaded draft, 10'10"; treaty standard displacement, 1500 tons; No. 4 boilers; 35 knots speed; estimated delivery, February, 1936.

Torpedo Boat Destroyer Downes (DD375) for U.S. Navy, 344 ft. long; beam 35'; loaded draft, 10'10"; treaty standard displacement, 1500 tons; No. 4 boilers; 35 knots speed; estimated delivery, May, 1936. Laying down lines under way in mold loft.

American Shipbuilding

(Continued from Page 286)

MOORE DRY DOCK SUBMITS LOW BID

Moore Dry Dock Company, San Francisco, submitted low bid at \$71,529.00, to the Superintendent of Lighthouses, San Francisco, for the conversion of Lightship No. 83 from a coal burner to an oil burner. The work will include replacing boilers, constructing fuel oil tanks, etc., under Proposal No. N-15.

MARE ISLAND WILL REPAIR 94 SHIPS

The regular schedule at Mare Island Navy Yard, Mare Island, California, shows a total of 94 vessels to be repaired there from now until January, 1936. Of these, 87 are destroyers, submarines, and auxiliaries, and seven are light cruisers. Beginning December 3, 1934, there will

be one light cruiser under overhaul all the time. Cruisers to be repaired include the Raleigh, Memphis, Milwaukee, Marblehead, Detroit and Trenton.

CONTRACT AWARDED FOR NEW BULKHEAD

The Board of State Harbor Commissioners recently awarded to F. C. Amoroso and Sons, San Francisco, a contract to construct a two-story reinforced concrete bulkhead building between Piers 38 and 40, San Francisco, for the use of the McCormick Steamship Company.

The successful bidder, with a bid of \$68,487.00, was the lowest of 11 firms who competed for the job. Construction will begin immediately upon receipt of the necessary fabricated steel.

The total cost of the building, in-

cluding other contracts, will be about \$100,000.

Half of the cost of the building is represented by the premium paid on \$500,000.00 worth of 1913 Harbor Bonds, which were sold about a month ago.



Trade Notes

Huge Oil Terminal at Boston. The Tide Water Oil Company is building a 45-acre fireproof marine petroleum terminal on the Chelsea River, in the Harbor at Boston, Mass., giving employment to between 500 and 1,000 men. It was announced recently by Edward L. Shea, President.

The ultimate development of the site will provide for the storage in fireproof tanks of 43,000,000 gallons of Tide Water gasoline, range oil, fuel oils, lubricating oils and greases. Immediate construction plans call for the erection of eight large tanks, with a capacity of 21,500,000 gallons, together with ample warehouses, garages, loading facilities and a large dock for the mooring of the Tide Water marine fleet of ocean-going and coastwise vessels and barges.

Contracts have already been awarded for the foundations and tanks. The entire project is expected to be completed by January 1, 1935.

The development of the Boston terminal follows a study of several years to discover and adopt the most economic method of transporting gasoline, and other petroleum products into the rapidly increasing New England market. This particular location has the advantages of deep water for the docking of our largest ocean-going tankers, excellent rail facilities for shipments and receipts by tank car, and the availability of the new highway running directly north from the center of Boston to points along the eastern New England shore for trucking operations.

Rubber Tired Steel Wheels. A complete line of rubber tired industrial wheels, especially designed to replace obsolete steel wheels on equipment already in service is known as Goodrich "Vulc-On" and is available in a wide assortment of sizes and types to meet practically every operating condition, in factories, docks, loading platforms and warehouses. The rubber tire is permanently bonded to the wheel, the rubber being vulcanized to the metal by the same process used in manufacture of solid truck tires. Made by this method, tires do not stretch or roll off the

wheels. Tires are constructed of the Goodrich roller compound tread, which affords maximum cushion to floors and load, and under ordinary conditions rolls easier than a steel tire.

Standard, cage type, anti-friction roller bearings are used in the one-piece metal wheels. Standard lubrication fittings are provided for.

"Vulc-On" rubber tired wheels: reduce wear and tear on floors; produce easy rolling; reduce depreciation on equipment; work quietly; minimize breakage claims; and increase handling speed.

Direct Austrian Radio: On August 1 there was opened by the Mackay Radio and Telegraph Company, a 24-hour daily service handling all classes of telegraph traffic between the United States and Austria, through the radio stations at Sayville, Long Island, and Vienna, Austria. This is the only direct radio circuit between United States and Austria.

Pacific-Italy Service: Featuring return of the steamer California,

largest Pacific Coast direct-to-Europe liner, a bright new folder was issued recently to the travel trade and prospective passengers, by the General Steamship Corporation, Ltd. of San Francisco, Pacific Coast agents for the Liberia Line. The California is scheduled to sail November 1 for her winter cruise from the Pacific Coast over the warm Southern route.

Pacific Coast Steel: Two highly colorful and interesting broadsides were recently issued by the Pacific Coast Steel Corporation, a subsidiary of the Bethlehem Steel Corporation. With steel mills and warehouses at San Francisco, Los Angeles, and Seattle, this organization is in an excellent position to serve all the needs of Pacific Coast users of steel with products that are the very best that modern metallurgy, scientific progress, and advanced mill practice can produce.

Giant Propeller: On July 20 the Manganese Bronze and Brass Company, Ltd., of London, shipped to Glasgow the first of four propellers for the new Cunarder. This four bladed wheel had 180 square feet of blade surface, weighed 35 tons, and was valued at 7000 pounds.

Freights, Charters, Sales

(Continued from Page 285)

and redelivery North Pacific, p.t.; American steamer Maine, delivery North of Hatteras, redelivery Pacific Coast, \$10,000 per month; same steamer, one voyage delivery North Pacific, redelivery North of Hatteras; American steamer Missoula, delivery and redelivery Pacific Coast, p.t.; American steamer Windrush, delivery North Pacific redelivery North of Hatteras, p.t.; Norwegian motorship Belpairel, one trip, delivery Pacific Coast, redelivery Japan or China, 5/6; American steamer General M. H. Sherman, one round voyage intercoastal, p.t.

Sales: American steamer Brookings, estate of Andrew Mahoney to McCormick Steamship Co.; American steamer Lumberman, California Steamship Co. to Schafer Bros., p.t.;

American steamers Sierra, Sonoma Ventura and Fort Wayne, Matson Steamship Co. to Japanese buyers p.t. (to be scrapped.)

PAGE BROTHERS, Brokers

The World's Most Popular Pneumatic Tools is the title of a new eight-page bulletin (2037-A) recently issued by Ingersoll-Rand Company. This bulletin lists for the first time the company's new sizes of "Multi-Vane" drills and "Multi-Vane" push-throttle screw driver and nut setters. It also illustrates and gives size-and-capacity tables of the I-R pneumatic drills, grinders, riveters, chippers, rammers, wrenches and hoists.

Pacific Marine Personals

"NAMES ARE NEWS" ★ BY BERNARD De ROCHIE

Increased travel to the Orient out of Portland means more man-power for States Steamship Lines. **Edwin A. Gardner**, general passenger agent, announces the appointment of **Robert Eaton** as city passenger agent at Portland, **Al G. Gittermann** as district passenger agent at San Francisco, and **John G. Hendren** as passenger clerk at the Portland ticket office.

Al Gittermann was formerly general passenger agent in San Francisco for the French Line, well experienced in servicing the travelling public. Mr. Eaton was with the Dollar Line and Pacific Steamship in Portland, acting as city passenger agent.

The States Line now operates the only coastwise service between Portland and San Francisco, and has just been appointed general agent in Oregon for I.M.M.

With **Colonel B. C. Allin**, executive of the Port of Stockton, acting as official host, the annual meet of the Pacific and Far East Ports Association is now under way.

Speakers at the convention include leaders such as **George F. Nicholson**, consulting harbor engineer of Los Angeles; **Charles Wheeler**, vice-president and general manager of McCormick Steamship Company; **R. V. Winquist**, of General Steamship Corporation; and **J. B. Thomson**, Vancouver Harbor Commissioner.

Coincident with the discussion of port and traffic subjects the convention delegates will participate in the official ground-breaking ceremonies for Stockton's four new terminals. They are also scheduling a county fair and horse show.

Seattle's port has now passed the thirteen million dollar mark as an investment, Port Manager **J. R. West** reminds us, with eighty-seven steamship lines operating 3500 vessels annually to 245 ports of the world.

Manager **George K. Nichols** of the Matson engineering and repairs department will have a new assistant for the next few months in **E. J. Mooney**, former chief of the Malolo, who comes shoreside for this maintenance department assignment.

In the Malolo engine room is Chief **K. M. Miller**—a nice promotion for this Matson engineer who was formerly first assistant in the big liner's power plant.



Hugh Gallagher.

Well wishes to **Hugh Gallagher**, operating manager of the Matson-Oceanic Lines.

It's great news to learn how splendidly he came through an operation, and we forecast that by the time this edition of P.M.R. appears on the street Hugh will be back on the job.

By the bye—speaking of the Malolo—this favorite cruise ship leaves on September 16 for that long-heralded adventure around the shore line of South America. **Captain G. B. Wait** will command, and we hear that he is enjoying a vacation away from the bridge ahead of the cruise.

Meanwhile **Captain E. R. Johnson**, who has just recently returned from the South Seas with the City of Los

Angeles, will skipper the Malolo. Another transfer from the City of L.A. is **Purser E. S. W. Smith**.

Did you all read San Francisco Chamber of Commerce President **J. W. Maillard, Jr.**'s telegram to Secretary of Agriculture **Henry A. Wallace**? We'll jot it down so you can review it again:

"The San Francisco Chamber of Commerce vigorously protests the statement attributed to you, advocating the withdrawal of Federal support from the American Merchant Marine and diverting the major portion of our export and import cargoes to foreign bottoms. The importance of an adequate Merchant Marine both in the interests of commerce and national defense is too obvious to warrant discussion."

T. G. Maddox of **Williams, Diamond and Company** in Los Angeles, has been selected from the company's personnel to be manager of the new office of W.D. in Stockton.

Mr. Maddox has been district freight agent of the Quaker Line. He was formerly resident manager of Luckenbach Steamship Company in Portland.

Announcement of **Williams, Diamond** plans for opening a Stockton office came from district manager **Harold C. Smith**.

Recognition of Stockton's development as a port and the delta district's importance in the movement of tonnage has prompted this inauguration of Quaker Line and States Steamship Line service for valley shippers.

A Seattle dispatch tells of **Libby, McNeil & Libby** planning several trips of their vessels, the **General W. C. Gorgas** and the **Libby Maine** to Alaskan waters to transport the season's pack, estimated at 600,000 to 700,000 cases.

We had the pleasure of watching S. F. Bay pilot, **Captain Charles Peterson**, make a skillful berthing of the Grace Liner Santa Lucia when the vessel arrived southbound from Puget Sound on August 8. Capt. Peterson is remembered by thousands as a long-time Matson skipper. Let's see—'twas the Matsonia. Right?

The Lucia is commanded by **Captain Jens Nilsen** who brought in about 150 passengers on the first leg of the east-bound voyage.

Former San Franciscan to Conduct Transportation Courses

H. E. Stocker, formerly of the Traffic Department, San Francisco Chamber of Commerce, has been appointed instructor in Transportation at New York University. Two evening courses will be given beginning with the fall term, "Transportation As It Affects the Shipper" and "Transportation Services and Rates."

The first course is described in the University's catalogue as follows:

"Of practical value to those interested directly or indirectly in transportation as a vital part of marketing. It incorporates all forms of transportation: rail, marine, roadway, air, pipe line, and plant transportation in relationship to economical movement of goods from producer to consumer. The purpose is to provide the student with an understanding of the fundamentals requisite to the solution of practical problems of manufacturers, merchants, warehousemen, and transportation companies. Attention will be given to such recent developments as shipping and packing of frozen foods, and the value of free ports. Analysis will be made of the transportation factor in various manufacturing industries, agriculture, warehousing, and merchandising, and conclusions drawn from the best practice under varying conditions. Field trips are planned during each term. Lectures will be illustrated with motion pictures, lantern slides, and photograph albums provided

(Please turn to Page 20)

Mackay Radio announces the appointment of **Mr. Arthur F. Wallis** as Marine Superintendent of its Atlantic Division succeeding **Mr. E. J. Girard** who is appointed District Manager at Washington, D.C. in charge of Mackay Radio's new stations and offices there.

Mr. Wallis is exceptionally fitted for his new position, with extensive experience in all phases of marine radio work—sales, installation, service and operation. He is a pioneer in the marine radio field, having been identified with the radio industry since 1903. He installed and operated some of the Navy's first radio equipment and served as radio operator and chief operator on shipboard and at shore stations in the



Arthur F. Wallis

Navy until 1910, when he left the service to join the National Electric Signaling Company.

In this company's employ he assisted in installing several of the early radio stations in the Boston vicinity, and took part in the erection of the first high power Naval station at Arlington. He was engaged also in research and worked on several developments which have now become fundamental in the art.

Mr. Wallis went with the Luckenbach Steamship Company as Superintendent of the Radio Department in 1917 but his work there was cut short when the United States entered the World War.

He returned to the Navy as Communication Officer attached to Third Naval District in New York, serving as radio censor, traffic officer and officer in charge of aircraft radio. In 1920 he was transferred to the base at Guantanamo Bay, Cuba, as officer in charge of radio stations.

Mr. Wallis resigned his commission in 1921 and joined the Independent Wireless Telegraph Company where he was engaged principally in the commercial end of the business. In 1925 he entered the employ of the Tropical Radio Telegraph Company and came to Mackay Radio from that company in the Spring of 1934.

Submarine Signal Company—the Fathometer people—have moved to a new San Francisco location.

A. M. Skudre, Fathometer service engineer out here on the Coast, has fixed up a nice exhibit of instruments including Fathometer models. You'll find 'em at 86 Beale Street.

Carl V. Lane, manufacturer's agent, San Francisco, is district representative for Submarine Signal.

The Bilge Club of Pedro, Wilmington, and L. A. Harbor membership, held the annual outdoor frolic on August 25.

A. C. Beckley, president, was the guiding spirit in arranging the golf tourney, barbecue, and program of field events.

W. H. Wickersham was chairman of the day.

Speaking of picnics—another organization in the Southern metropolis, the Los Angeles Transportation Club, convened at the Park Country Club out on Ventura Boulevard for the annual outing which is given over to swimming, tennis, golf, and —I have no doubt—eating. The big day was August 18.

A new company and new officers now operate the Charleston Dry Dock Company at the South Carolina port of call.

C. V. Boykin, president, **S. A. Guilds**, vice president, and **R. A. Kessler**, secretary and treasurer, are the executives of the new company, which acquired all of the property of the former Charleston Dry Dock and Machinery Company.

Propeller Club to Launch Fall Activities

The Board of Governors announce that our luncheons will be resumed at the Fairmont Hotel, Tuesday noon, Sept. 11, 1934. It is hoped that all hands will be on deck to inaugurate our popular luncheons which were temporarily suspended on account of the vacation period.

The Entertainment Committee have arranged for special entertainment for our opening luncheon; beforehand, a short business meeting will be conducted, after which there will be a general jollification and get-together of the members.

On Tuesday, Sept. 25th, we will be addressed by our fellow member, Capt. Ike Smith, former master of one of the biggest tankers in the world, the m.s. California Standard. More recently, Capt. Smith, as master of the s.s. El Segundo, participated in an expedition into the Persian Gulf and assisted in the installation of a submarine pipe line, moorings and shore tanks, as well as charting the waters adjacent to the terminal. He will tell of the experiences of the expedition and will illustrate same by means of moving pictures. Capt. Ike is a real fellow, and those of our members who have not met him will enjoy meeting him.

—PC—

New members:

Commodore George W. Bauer, U.S. Naval Reserve.

Mr. George D. Hart, Farnsworth and Ruggles.

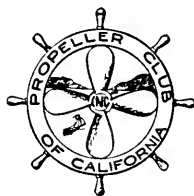
—PC—

The Golf Committee are on the job—their plans for our annual fall tournament are rapidly being completed for a tournament to be held in October; details will be announced shortly.

—PC—

Our good friend Hugo Paladini is very proud these days, and rightfully so; the newest addition to the Paladini fleet has been named the Hugo Paladini—she is a palatial liner amongst the trawlers; may she catch many fish, and big ones, Hugo.

Official News of the PROPELLER CLUB of California



HEADQUARTERS

320 Market Street, Room 249
San Francisco

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Secretary-Treasurer

STANLEY E. ALLEN

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| John T. Greany | |

Jim Castle, valve expert and ukelele technician, promises to be among those present at the inaugural meeting September 11. We're saving a front seat, Jim, but better come early.



H. T. Haviside,
President of the Propeller Club of
California will take up gavel for
second semester.

Our fellow member, Walter J. Walsh, attorney-at-law, has been appointed Chairman of Navy Day for San Francisco. Walter is an ardent booster for the merchant marine and a bigger and better navy; he is a former naval officer, and is well qualified for the appointment; he is busy making plans for Navy Day, and in doing so he can rest assured that he will have the whole-hearted cooperation of his shipmates in the Propeller Club.

—PC—

Speaking of fishing fleets, looks like the pros will have to look to their laurels! Frank Evers, American Bureau of Shipping chief, has just returned from Santa Barbara after depleting the channel of albacore, yellow tail, sandabs and ink fish. "Piscatorially speaking," Frank tells us, "the results were not only colossal, stupendous, gigantic—they were positively mediocre!"

—PC—

Propeller congratulations to club member Joe Lunny on his recent promotion in the personnel ranks of McCormick Steamship Company. His many friends will say "Aye! Aye!"

Joseph A. Lunny, vice-president and director of McCormick Steamship Company, we salute you!

—PC—

Glad to hear that Propeller Al Porter is well on the mend, and we'll look forward to having him on the main deck with us again. Al did yeoman duty all last year as chief arranger of our luncheons and programs.

Memories of the staunch old steamer Humboldt are recalled by the news of the retirement from the sea of **Captain E. G. Baughman**. Fifteen years of service on the famous coastwise ship is **Captain Baughman's** record. His later command has been the L.A.-S.F. Navigation Company's Celilo. The veteran shipmaster will go shoreside after a career which dates back to the gold-rush days in Alaska.

New skipper of the Celilo is **Captain A. Abbars**, formerly chief officer.

A splendid promotion for **Farmly S. Clapp, Jr.**, has been announced by officials of the Isthmian Steamship Lines. Mr. Clapp has been named General Freight Agent, we learn from New York advices.

J. E. Ryan, general passenger traffic manager of the Matson line, returned from his London trip enthusiastic over the installation of new branch offices in "the world's largest city".

The new quarters are located in the Shell-Mex house in the Strand—the prime purpose to service through traffic from England to Australia.

Fred L. Doelker, Pacific Coast manager for Grace Line, hosted at the wedding breakfast of **Captain Ragnar Snobohm**, marine superintendent of the Johnson Line. **Captain Snobohm** was married July 25 to Miss Elin Berner of San Francisco.

T. W. Moffitt, Jr., district freight agent, succeeds Mr. Hook as Los An-

geles district purchasing agent, and office manager.

Los Angeles General Passenger Agent is the new title bestowed by Matson Navigation Company on **H. E. Pippin**, as announced by **J. E. Ryan**, general passenger manager at San Francisco headquarters. The new Los Angeles official comes to his post with a splendid background of passenger traffic experience. He was formerly general agent for Matson Line in New York, and more recently head of passenger traffic development—way down in Australia. He took over his new work August 1, succeeding **R. F. Cullen**, resigned.

This appointment will be gratifying to Mr. Pippin's friends in New York, San Francisco, Hawaii, the South Seas, and in Australia and New Zealand, where he has spent many years in the Matson travel service.

On her way to Alaskan shores, the power-yacht *Stranger*, with **Captain Fred Lewis**, her owner aboard, dropped anchor at San Francisco's yacht harbor. **Captain Lewis**, a nemesis of deep-sea fish—the stranger the better—is the owner of the Diamond Bar ranch in Southern California. The *Stranger's* home berth is at Newport Beach Yacht Harbor at Balboa Beach.

J. L. Hook became acting district manager in charge of all the McCormick Steamship Company interests in Los Angeles during the last week in July, relieving **Sam Y. Knight**, who had been in ill health for considerable time.

His new duties will likewise place him in charge of **Charles R. McCormick Lumber Company**.

The glorious "H.F." is back on the run! Spick and span from keel to truck, the super-express liner of the Pacific Steamship Lines, Ltd., made her first summer sailing out of California ports during the first days of August. Announcement is also being issued currently by **Charles Perkes**, Admiral Line executive, at San Francisco, of the scheduled sailing of the *Emma Alexander* and other Admiral vessels on the Los Angeles-San Francisco-Puget Sound run. Back to normalcy after strike conditions have been settled, it is anticipated that coastwise passenger booking will be unusually heavy.

Well—the historic old Ventura is now on her last voyage! Manned by a Japanese crew, the former proud bearer of the Matson and Oceanic house flags is bound for Japan—and, alas, the scrap pile.

Lest we forget, it was the Ventura which made the spectacular rescue of the passengers and crew of the liner *Tahiti* just a few years ago.

Captain Meyer was in command at the time. Do you remember the details? The *Tahiti* had broken her tail shaft, tearing a hole through the hull. The pumps could not compete with the heavy seas. The S.O.S. reached the Ventura as she was discharging at Pago Pago. A life or death race followed, and as the smoke of the rescuing steamer was observed by those imperiled on the sinking *Tahiti*, all hands aboard took to the boats. Every soul was rescued. Not a man was injured. But so narrow was the margin of time that the ill-fated *Tahiti* sank while the heroic Ventura was coming alongside.

Farewell now to the grand old ship, which has been such a colorful part of Pacific Marine annals.

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Yokohama, and Honolulu to San Francisco, and Los Angeles Harbor.

Atlantic - Far East

WEEKLY SAILINGS from New York, FORTNIGHTLY from Boston to
Honolulu, Yokohama, Kobe, Shanghai, Hongkong, and Manila.
FORTNIGHTLY SAILINGS from Manila, Hongkong, Shanghai, Kobe,
Yokohama, Honolulu to New York and *Boston.
*Transshipment New York.

Mediterranean - U. S. A.

FORTNIGHTLY SAILINGS from Alexandria, Naples, Genoa, and Mar-
seilles to New York, Boston, Los Angeles Harbor, San Francisco. Cargo
destined Oakland, Portland, Seattle or Vancouver subject to San Francisco
transshipment.

Round-the-World

FORTNIGHTLY SAILINGS between Boston, New York, Havana, Colon,
Balboa, Los Angeles Harbor, San Francisco, Honolulu, Kobe, Shanghai,
Hongkong, Manila, Singapore, Penang, Colombo, Bombay, Suva, Port
Said, Alexandria, Naples, Genoa, Marseilles, thence New York

Trans-Pacific Freight Service

TRI-MONTHLY SAILINGS between Los Angeles Harbor, San Francisco,
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WEEKLY SAILINGS from New York, FORTNIGHTLY from Boston
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Ships that add lustre to everything — route, speed, diversions. Destination . . . Hawaii, the perfect spot for leisure hours. Take a mid-Pacific holiday *this month*.

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to Hawaii, Samoa, Fiji, New Zealand, and Australia. 46 days, 17,000 miles. Personally escorted, all-inclusive-low-cost. Cruise ships—"MARIPOSA" and "MONTEREY". Shore excursions at all ports (except ports of departure) both going and returning. Fares from \$595 First Class, \$450 Cabin Class. Entertainment and shore excursions included.

Final sailing at these low summer Round-Trip fares: S.S. Mariposa from San Francisco, August 21; from Los Angeles, August 22.

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SPOKANE

Captain Thomas F. Gates, of the Atlantic Transport Line, veteran North Atlantic shipmaster, has retired from the sea after more than half a century of active service, according to word received recently from the New York office of the International Mercantile Marine Company, owner of the Line. He has been in command of the Minnetonka since that liner came out in 1924.

The retirement of Captain Gates brings to a close a notable sea career both in point of time and service, for this well known seaman is senior commander in the North Atlantic trade if not in the seven seas. He has been continuously in command of vessels for 45 years and has been at sea for 56 years during which he achieved a notable record for fine seamanship.

An officer with a long and creditable record in the intercoastal trade will have the honor next week of taking into Liverpool the first America-flag ship on a regular trans-Atlantic run that has entered that port since the world war. He is Robert J. Sullivan, who for several years has been chief officer, and at times relief commander, of the Panama Pacific Liner Virginia, and his new command is the American Shipper, a combination passenger and freight

liner with which the American Merchant Lines on July 20 inaugurated a fortnightly service between New York, Cobh, Liverpool and Manchester.

Captain Sullivan is a native of Maine, and has been in the service of the I.M.M. Co. lines nearly twenty years, the greater part of the time on the Panama Canal run. Last year he was transferred from the Virginia to the new United States liner Manhattan as chief officer. He has held a master's papers for more than ten years.

In his new berth, Captain Sullivan is inaugurating a service that was launched when the I.M.M. Co. surrendered its operating agency for the White Star Line. Two ships will be employed to establish a fortnightly schedule of sailings, the other being the American Importer. Both were formerly U. S. Army transports.

The ships will fly the same house flag as the vessels of the Panama Pacific Line—a blue spread eagle on a white ground.

New chairman of the Pacific Westbound Conference is Allan K. Hulme of the General Steamship Corporation.

A. A. Tachella who looks after the interests of Busch-Sulzer on the Pacific seaboard, returned on August 14, to his San Francisco headquarters from an extended trip to Puget Sound and "tributaries".

"Tac" arrived on the Emma Alexander reporting an all-quiet-in-the-engine-room voyage. The diesel expert promises early descriptive data for a P.M.R. article covering the dieselization of the ex-Peralta, now being converted by Puget Sound Navigation.

George Swett of Western Engineering Company, San Francisco house of Auxiliary Machinery, made us grin with this one:

"It seems," says George, "that two gents of Semitic origin went out on the Atlantic banks for their first fishing experience. Guests aboard the "palatchal" yacht, they separated during the afternoon. Ginsberg, on the after-deck, hooked a big one.

"What is it?" he asked a crew member.

"That's a haddock, and it's a beaut!" he was told.

The lucky angler shouted to his friend, way up in the bow:

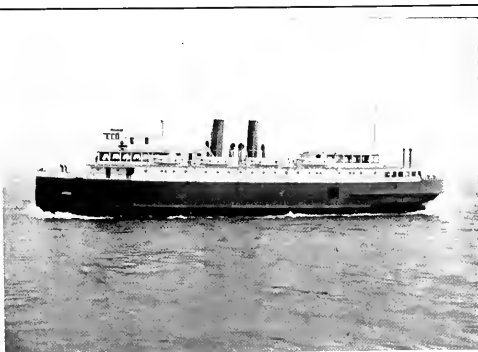
"Hey, Abe—come quick, I got a haddock."

"So," responded Abe, "what can I do? Mebbe you should take a esperin."

"Tube Failures were quite Frequent until we Installed Marine Electrolysis Eliminators in March; No Condenser Tube Failures Since"

says the Chief Engineer of the famous Puget Sound night boat-ferry IROQUOIS, running a daily round trip between Seattle, Port Townsend, Port Angeles and Victoria, and two round trips between Seattle and Bremerton IN ADDITION —7 days a week.

STOP ELECTROLYSIS NOW and save thousands in repair bills.



Seattle-Victoria S.S. Iroquois of the Black Ball Line. The Iroquois has not lost a single schedule by condenser trouble since being equipped with Marine Electrolysis Eliminators.

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There are no harmful acid-forming compounds...no sulphur or water in Union Diesel. It is absolutely uniform...forms no hard carbon and its extremely high calorific value *assures maximum power output per pound of fuel*. The fact that you get the *correct* grade of fuel for your type of engine means extra efficiency and economy.

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When fuel or lubrication problems arise, call the nearest Union representative or write the Union Oil Company, Union Oil Building, Los Angeles, for the free services of the Union staff of engineers. These experts are often able to reduce fuel and lubrication costs 10 to 25%—yet gain increased efficiency! Call or write today. This service is free!



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"LOWER FUEL COST PER HOUR"

FOR THE GALLEY . . . and elsewhere

Terrazzo that is Non-Slip . . . Wet or Dry

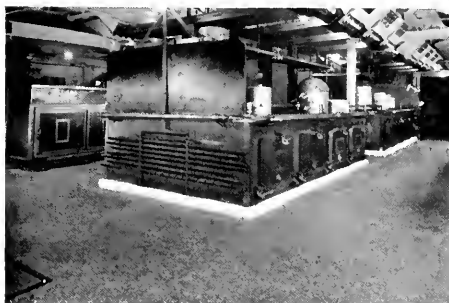
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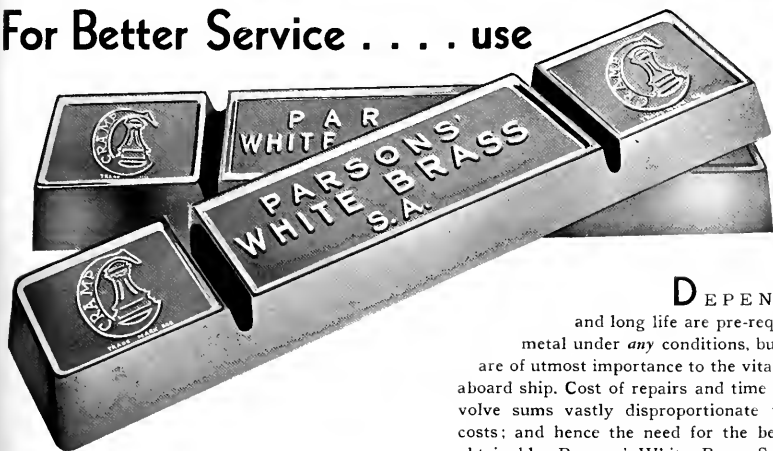
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PASCHALL STATION, PHILADELPHIA

Pacific Coast Representatives: THE PELTON WATER WHEEL COMPANY, San Francisco, California

Transportation Courses

(Continued from Page 10)

for the inspection of the students."

In this course attention will be given to plant transportation, otherwise known as materials handling, with particular emphasis upon the "tie up" between plant transportation and common carrier transportation.

The description of the second course as carried in the catalogue follows:

"Gives the students a practical understanding of railroad, roadway, pipe line, and air transportation, to train them in "buying" or "selling" transportation to the best advantage. It covers the fundamentals incident to the practical solution of transportation problems concerned with the marketing of goods. Rates, rate making, and tariffs are included, together with an analysis of the elements of transportation service (transit time, freight protection, handling of claims, car supply, personal service, etc.). Much of the course will treat mainly with trends

in the progress of transportation and recent developments in refrigeration, store-door deliveries, and containers. Government relationships of the carriers are considered with particular emphasis upon the work of the coordinator of transportation in his endeavor to improve transportation services, reduce costs, and in other ways provide a more effective transportation system. Consolidation of railroads and the coordination of rail and other forms of transportation are analyzed for effects on transportation service and rates. Lantern illustrations will be used also."

These courses have been prepared with great care to make them of the maximum practical value to the student by giving him a thorough training in the basic principles of transportation and in the best methods of solving transportation problems.

Mr. Stocker, by his writings in the trade press and in papers presented before technical societies, has estab-

lished himself as an authority on transportation. His experiences date back to the time when he entered the employ of the Southern Pacific Co. in 1912. During the intervening twenty-two years, Mr. Stocker has been with the Traffic Department of the San Francisco Chamber of Commerce, Pacific Mail Steamship Company, Munson-McCormick Line, and the Newtux Line, with whom he is now connected as Secretary-Treasurer. He has not only had a rich experience in Transportation, but he has studied the subject from every angle.

Official announcement has been issued by Fred L. Doelker, Pacific Coast manager for Grace Line, naming Edward T. Senter as Marine Superintendent in charge at Pier 35 San Francisco's splendid Grace terminal.

The former position of Port Captain has been merged with the duties of the Marine Superintendent office.



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All set . . . to recoat ... in 2 hours!

An announcement to those responsible for vessel upkeep . . .

The Federal Paint & Composition Company, Inc., offers a new product—A PROTECTIVE PRIMER—for new and scaled steel surfaces.

Federal Marine Primer meets all the requirements of a metal primer. It has:

1. Rust inhibitive powers of basic pigments.
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3. Fine adhering quality.
4. Special hiding and covering powers.
5. Ease of application.

Time Saving is Money Saving. Speed in application means economy to you. Scaling, priming and finish coating can be completed within usual dry-dock time.

APPLY DIRECTLY to steel surfaces—after scaling—as a true protective coating. After Two Hours the primer is dry, ready for re-coating.

Pacific Marine Review

OCTOBER 1934



Official Organ
PACIFIC AMERICAN
STEAMSHIP ASSOCIATION



Official Organ
SHIPOWNERS ASSOCIATION
OF THE PACIFIC COAST

Tubbs Rope at Sea . . .



Yacht "Manuiwa"—Capt. H. G. Dillingham, Owner.

"Finer Line was Never on my Yacht."

The MANUIWA—"Frigate Bird"—Captain Harold G. Dillingham's swift sailing yacht, flying the colors of the Pearl Harbor Yacht Club, passed Diamond Head, Oahu, about 10 P.M., July 17th, winning the 1934 trans-Pacific Yacht Race from a field of twelve contestants over a 2100 mile course. MANUIWA, your captain and crew, we salute you!

TUBBS ROPE played no small part in this victory, for the MANUIWA was equipped with EXTRA SUPERIOR MANILA. Better than we can tell are the words of Captain Dillingham:

" . . . finer line was never on my yacht and its strength and pliability were most welcome features.

"Above all else, in off-shore sailing, my brief experience has convinced me that the strength of standing rigging and running gear contributes more to one's peace of mind than anything else, and this is the satisfaction I have had with the use of your line."

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Pacific Marine Review

The National Magazine of Shipping

VOLUME XXXI

OCTOBER, 1934

NUMBER 10

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OUR COVER

The beautifully artistic photograph reproduced on this month's cover was the work of the Photo Finishing Corporation, Manila, and shows the S.S. President Hoover at Manila's famous Pier No. 7 as seen from the lovely water side park and golf links that occupy the location of the old Spanish wall and moat.

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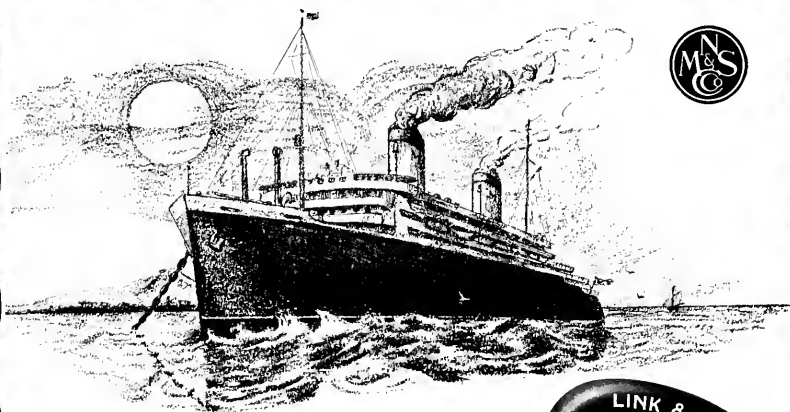
Official Organ
Shipowners' Association
of the Pacific Coast

Alexander J. Dickie
Editor

M. J. Suitor
Asst. Editor

Chas. F. A. Mann, Northwestern Representative, 1110 Puget Sound Bank Bldg., Tacoma, Washington.

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Pacific Marine Review

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Editorial Comment » » »



Agriculture and the Merchant Marine

A great deal of patriotic fervor has been aroused during the past few weeks by the statement of the Secretary of Agriculture that: "In a sense—allowing foreigners to carry a large percentage of our trade, promotes our commodity exports—for it means that foreigners have more purchasing power with which to buy them. . . . If we further protect shipping, we shall export less of our farm commodities." Elsewhere in this issue, several articles set forth the argument for an American flag merchant marine. We desire to call attention here to some economic fallacies in the point of view assumed by the Secretary of Agriculture and endorsed, so far as economics are concerned, by the President of the United States.

The latest detail figures that we have on agricultural imports and exports are those for the last quarter of 1933—from October 1, 1933, to December 31, 1933. During these three months, the total volume of agricultural products exported from the United States was 1,793,003 tons,

while agricultural products imported into the United States totalled 2,684,570 tons. In percentages of the total volume, our agricultural exports were approximately 18 per cent of the total exports, while our agricultural imports were 28 per cent of our total imports.

It is interesting to note how the total of the agricultural export was carried overseas. Of the 1,793,003 tons, 57,581 tons, or approximately 3½ per cent, was carried on ships belonging to and operated by the United States Shipping Board. Ships owned or operated by private American firms or individuals carried 463,115 tons, or approximately 26½ per cent. Ships under the British flag carried 494,141 tons, or approximately 28 per cent and ships under foreign flags other than British carried 743,291 tons, or approximately 42 per cent. In other words, foreign flag ships are now carrying 70 per cent of our agricultural exports.

Looking at the agricultural import picture, we do not see any disposition on the part of the exporters who send us these imports to allow them to be carried largely in American flag ships. Of the 2,684,570 tons total agricultural imports during the last quarter of 1933, ships belonging to, and operated by the U.S. Shipping Board, carried 75,484 tons, or approximately 2.8 per cent; ships owned and operated by private American firms or individuals carried 1,078,619 tons, or approximately 40 per cent; and ships under foreign flags carried 1,530,467 tons, or approximately 57 per cent. Of this 57 per cent, 687,977 tons came in under the British flag, and 842,490 tons under other flags.

It is an interesting fact that during the period under review, we im-

ported nearly 70 per cent more wheat than we exported. The total tonnage of all classifications exported was 9,258,888 tons, and the total tonnage of imports was 7,252,965 tons. A little more than half of the export tonnage is included in two classifications—"coal and coke," 1,789,566 tons; "petroleum and products," 3,041,119 tons. Cotton, 653,424 tons; wheat, 312,699 tons; fruit and nuts, 298,560 tons, are outstanding items in the agricultural export tonnage, and they comprise approximately 70 per cent of the total. Import's largest item is also "petroleum and products," with 1,524,980 tons; "pulpwood and wood pulp" coming next with 662,021 tons. These two items comprise almost 30 per cent of the total. "Wheat," with 530,544 tons, is in third place, and "sugar," 418,034 tons, is fourth.

Combining the agricultural export and import figures of the last quarter of 1933, we have a total of 4,477,573 tons. Of this total, 1,674,799 tons are carried in American vessels, or approximately 37 per cent. Any way you take it, coming or going, the bulk of the agricultural products moving out of and into the United States over sea routes is now being carried by vessels owned and operated by foreign nationals.

We carry a little more of our exports and considerably more of our imports than do the ships of Great Britain, which should be a matter of great interest to those champions of America's maritime heritage, who are so interested in anti-British propaganda. There have been times in our past when ships of Great Britain carried nearly 80 per cent of our overseas commerce. Today, over 40 per cent of our overseas agricultural

(Continued on Page 312)

..... *Whither Bound*

The American Merchant Marine

*A Brief Analysis of the Problems and Handicaps of Operation under
the American Flag with Particular Reference to Pacific
Ocean Routes*

By Ernest E. Johnson

Why is any ship subsidy (mail contract) necessary, or even advisable? Is Secretary Henry Wallace correct in his diagnosis? Should foreign nations carry all our imports and exports?

The American Merchant Marine Act of 1920 proclaims that an adequate American merchant marine shall be provided and our American flag ships shall carry the greater part of our commerce. Do we have an adequate up-to-date merchant marine? We do not. Do we carry the greater part of our foreign commerce? We do not.

In the highly developed Pacific Coast-European service it is doubtful if we carry even 5 per cent of our valuable agriculture, fish, fruit, lumber, mining and manufactured products.

In this service we have a line of so-called liner tramp steamers. Compared with the foreign ships in the trade our American ships are slow, costly to operate, and obsolete. They are cargo tramps only. On the other hand, there are 18 foreign lines, each providing a weekly, 10 days, twice a month, or monthly service. Practically all of these operate especially designed, modern, fast, economical combination passenger and cargo motorships, nearly all of them built in Europe since the war.

Why have not American owners gone in for this essential trade in which European owners operate at a profit?

I had occasion to go into detail as to this prospective business in 1931. We determined that the best type of ship would be similar but superior to those operated by the big European owners, namely:

HANDICAPS OF AMERICAN SHIPOWNERS IN THE FOREIGN TRADES ARE:

1. Initial excessive cost of building ships.
2. Cost of operation far in excess of that of foreign owners.
3. Cost of offices and other overhead much greater than that of foreign owners.
4. Repairs and upkeep by far more expensive than to foreign owners, who can effect repairs, renovating, remodeling and renewals wherever it is cheapest and without paying duty thereon.
5. Heavy cost to our owners in developing new territory deemed essential to our foreign trade.
6. Shipbuilding bounties and operation or service subsidies paid by foreign governments to foreign owners and now generally on the increase.
7. Ruinous rate cutting practices by foreign lines serving American ports.

12,000 tons deadweight motorships.

200,000 cubic feet refrigeration space.

100 first class superior passenger accommodations.

18 knots loaded speed.

One of our best known eastern yards estimated building cost per ship, \$4,250,000.00.

Here are bids secured in Europe in U.S. gold dollars:

| | |
|------------------------|----------------|
| Scandinavian yard .. | \$1,465,000.00 |
| " " .. | 1,670,000.00 |
| " " .. | 1,872,500.00 |
| Continental yard | 1,625,000.00 |
| " " .. | 1,660,000.00 |
| " " .. | 1,664,000.00 |
| " " .. | 1,915,000.00 |
| British yard | 2,449,440.00 |

The prices quoted above are not unusual or spectacular. I have bids on various types of fast cargo motorships with limited passenger accommodations and large refrigerated cargo space at a cost of about \$66.00 per ton deadweight abroad against a very probable cost of \$208.00 per ton deadweight here.

The initial cost of a ship naturally is reflected in the cost of operation. Interest, depreciation, insurance and other capital charges bear an important relation to other charges involved in voyage accounts of profit and loss. Subsidies paid in America are supposed to offset extra costs due to higher labor, material and living conditions. They do not always do so.

Cost of the above type of ship here

Cost of the above type of ship in Europe, say

Handicap against American owner

In Europe they usually use 14 per cent and here we usually use 15 per cent as an overhead charge for calculations on capital outlay. In this case we will use 12 per cent.

Under present conditions and provided the service was certificated for a mail contract, and with a speed of 18 knots the service would receive

\$8.00 per mile from the last port on the Pacific Coast-Los Angeles, to the first port in Europe, say, Havre, France, a distance of 7,566 miles. The ship would make $3\frac{1}{2}$ trips per year.

The picture would therefore be:

| | |
|--|--------------|
| Handicap, \$2,586,000.00 at 12 per cent. | \$310,320.00 |
| To offset this: | |
| Subsidy on 7,566 miles at \$8.00 | \$60,528.00 |
| By $3\frac{1}{2}$ trips per year = | |
| Yearly offset by mail subsidy | \$211,848.00 |
| Leaving a yearly handicap to the American owner due to the initial cost of building in American shipyard | \$ 98,472.00 |

In other words, even with present subsidies (mail contract) to help pay the difference, an American owner operating in this particular trade and with this particular type of ship would face a capital outlay handicap of \$98,472.00 per ship per year. Further, he may have to face economic and political hazards that may tend to deprive him of the subsidy sorely needed during the ordinary life of the ship to help pay part of the extra initial cost.

Possibly to take care of the extra initial cost of building ships in America and in order to employ a great number of our skilled shipyard labor available and further to afford more employment to labor in material plants, serious thought should be given to the advisability of subsidizing our American shipbuilding yards. Our Merchant Marine Act provides for an adequate fleet consistent with our economic and national requirements. We should have a greatly enlarged merchant marine as an auxiliary branch of our navy. The navy specifications required are costly and account in part for the excessive initial costs here. American owners should be able to have ships suitable for their intended trade built here at costs as low as a foreign competitor can have a similar ship built in foreign yards. In other words, initial cost handicaps should be removed with resultant lower operating or service subsidy. After all, in actual operation our American merchant fleet in foreign service must perforce compete with foreign built, owned and operated ships in the same trade. There is no magic formula by which this can be accomplished.

In foreign trades there are other handicaps the American owner has

to deal with. One is foreign exchange. The Japanese shipowner, for instance, has profited tremendously by the low yen exchange. Then there is lower cost of operation due to lower wages on foreign ships and

shipyards, which latter materially lower repair and maintenance costs; also cheaper stores and food costs. And finally other nationalities pay their ship owners both a shipbuilding bounty and a service or operating subsidy.

We here on the Pacific Coast naturally must view our good friends across the Pacific—Japan. They have inaugurated an ambitious program of very far-reaching effect.

The geographic compactness of Japan fosters a very unified control of all Japanese shipping. The fact that all Japanese steamship operation is controlled in relatively few hands lends further emphasis to this unified control.

Loyalty of Japanese shippers and importers to their national vessels, rigidly fostered by the government, is phenomenal.

A very paternal government, ever watchful, always stands ready to foster every possible facility to improve the many and varied so-called key or essential services.

The government organized "Shen-sutsu Kaigun Kyokai," meaning Ship Standard Improvement Association, comprises leading Japanese shipowners and shipbuilders functioning under the auspices of the Ministry of Communications. The functions of this bureau are:

1. Adjustment of demand and supply of vessels to be scrapped or built.
2. Establishment of a subsidy scheme for each year.
3. Formulation of a program for scrapping and building.
4. Certification of contracts between owners and builders.
5. To act as agents for owners in the procedure to obtain subsidy.

6. To watch for and maintain observance of the various terms and conditions called for by the state scheme.

7. To supervise collective bargaining in the negotiations with steel manufacturers and or shipbuilders.

8. To prevent importation of foreign vessels.

9. Adjustment of the value of vessels to be broken up.

10. To afford facilities to shipowners for raising of building funds.

The "Kaigi Kenkyukai," "Shipping Research Society," held meetings with Japanese steamship companies and resolutions were drawn and presented to the Japanese government for:

1. Unification of marine administration.

2. Control of subsidized lines, with an age limit for subsidized vessels.

3. Establishment of a marine bank.

4. Shipping of Japanese cargo on Japanese vessels.

5. Reform of import tariff on foreign vessels.

In an exhaustive study the Japanese shipowners determined from the following tabulation that one million gross tons of ships of over 1,000 gross tons each were obsolete and should be scrapped.

| Age | Number | Gross Tons |
|----------------------|--------|------------|
| Under 12 years | 263 | 1,204,980 |
| Under 17 years | 331 | 1,153,006 |
| Under 27 years | 126 | 555,138 |
| Over 27 years | 212 | 649,222 |

Therefore, in September 1932, the Japanese government approved a supplementary budget in the amount of yen 11,000,000.00 (eleven million yen) to be spent in three years for subsidizing the building of 200,000 gross tons of new vessels and scrapping of from 400,000 to 600,000 gross tons of obsolete Japanese vessels of at least 1,000 tons each and over 25 years old.

On October 1st, 1932, the ship construction law became effective. It was motivated by:

1. Too many obsolete vessels.
2. Need of faster, more economical ships to enter competitive world trades.
3. Naval value of a fleet of fast new merchant vessels.
4. Industrial and strategic value in maintaining private shipyards in production and labor employment.

Under the law the vessels were to be constructed under the supervision of the Ministry of Communications and the Navy.

Speed of the vessels was emphasized.

The shipping company to receive the subsidy has to scrap two tons of obsolete tonnage for each new ton built.

The new ships to be cargo vessels of not less than 4,000 gross tons and at least 13½ knots speed.

Shipbuilding Subsidy per Gross Ton
yen 45.00 for less than 14 knots
yen 46.00 for 14 knots
yen .50 for each additional ½ knot

Up to yen 54.00 for 18 knots and over

Subsidy to be paid half upon keel being laid. The other half when vessel is commissioned for sea, provided by then the obsolete tonnage was placed in the hands of scrappers.

All new construction to be in national yards with Japanese labor and material, including fittings and engines.

All vessels built under terms of subsidy not to be disposed of or rebuilt without approval of the Ministry of Communications.

By the end of November, 1932, 50,000 gross tons of new building under the subsidy was applied for. By March 1933 the 100,000 tons allotted for 1933 was authorized, with an additional 81,200 gross tons applied for.

By now a concerted drive is on to extend the period beyond 1935 and to include combination passenger and cargo vessels, and the program to be based upon scrapping of one ton, instead of two, for each ton built. There is every likelihood of some such plan being undertaken to foster the growing trade of Japan.

By August, 1933, ships were built, under construction, or contracted for as per Table No. 1:

Naturally, the program being over-subscribed, a number of additional ships have been contracted for.

It is very significant that all contracts entered into for long route ocean trade are every one for fast motorships of the latest approved type. These combine low cost of operation with high speed, large carrying capacity, and ability to carry round trip low cost fuel. There are

| TABLE No. 1 | | | |
|-----------------|-----------------|----------------|----------------|
| Number of Ships | Gross Tons Each | Speed in Knots | Subsidy in Yen |
| 1 | 4200 | ..... |  |
| 2 | 5000 | ..... |  |
| 1 | 5500 | ..... |  |
| 3 | 6000 | ..... |  |
| 1 | 6800 | 16 | 340,000.00 |
| 2 | 6900 | 18.75 | 750,000.00 |
| 6 | 7300 | 18. | 2,364,000.00 |
| 3 | 7450 | 16 | 1,116,000.00 |
| 3 | 7500 | 18.75 | 1,640,000.00 |
| 4 | 7600 | 18.5 | |
| 1 | 9800 | | |

no purely freighters of this type and speed in the American merchant marine, and few in any other nationality at present. They are and will be real competitive factors in the trans-Pacific trade. They are a real challenge to the American Merchant Marine.

The strategic importance of these fast and large cargo capacity motorships as naval auxiliaries is quite obvious.

Our cargo ships are generally war products. They have a speed of ten to twelve knots. They consume around one pound per brake horse power per hour as against the motorship of from 0.36 to 0.40 pound per brake horse power per hour.

Besides the shipbuilding bounty the Japanese government also pay ship owners a service subsidy in essential trades.

For the year 1933 the Nippon Yusen Kaisha received the following subsidies:

Now let us see what this means to our American ships. We are dealing here with trans-Pacific problem and must necessarily utilize data secured from the line most directly involved. I have, therefore, taken the various types of President ships of the Dollar Steamship Lines, Inc. Ltd., for comparative purposes.

The Japanese service subsidy, as far as our investigation discloses, is paid on the basis of 50 sen per each 1000 miles per gross ton at a speed of 12 knots. Each additional knot per hour increases subsidy allowance 5 sen. To illustrate:

The motorship Chichibu Maru has a gross tonnage of 17,498. Ship subsidy service speed 18.5 knots. To distance Yokohama - Honolulu - San Francisco and back to Yokohama 10,972 miles. We have, therefore, the formula:

18.5 knots = 82.5 sen x 17,498 yen 14,435.85 x 10,972 miles, which provides the Chichibu Maru subsidy of yen 158,390.25 per trip.

| | |
|---|----------------------|
| San Francisco services, yen | 2,856,713.00 |
| Seattle services, yen | 1,703,000.00 |
| South America services, yen | 2,043,672.00 |
| Total | 6,603,385.00 |
| Shipbuilding bounty in accordance with reports at hand..... | 2,364,000.00 |
| Total N.Y.K. subsidies Trans-Pacific, yen..... | 8,967,385.00 |
| For 1934 this will be increased to: | |
| San Francisco services, yen | 3,747,000.00 |
| Seattle services, yen | 1,757,000.00 |
| South America services, yen | 2,043,672.00 |
| Total | 7,547,672.00 |
| Plus any additional shipbuilding bounty. | |
| On the San Francisco run they received in | |
| 1930 | yen 3,757,000.00 |
| 1931 | yen 4,068,000.00 |
| 1932 | no figures available |

Similar for Tatsuto Maru and Asama Maru.

For comparison purposes we must take the S.S. President Hoover of the Dollar Steamship Lines, Inc., Ltd.

For exchange purposes I have used the arbitrary amount of 32c to one yen.

On the two particular trips taken the S.S. President Hoover had a turn around, or complete round trip, of 56 days; the M.S. Chichibu Maru 63 days.

| | S.S. Pres. Hoover | M.S. Chichibu Maru |
|---------------------|-------------------|--------------------|
| Wages | \$26,101.67 | \$10,503.69 |
| Fuel | 19,176.39 | 19,912.00 |
| Provisions | 25,093.67 | 4,480.00 |
| Repairs | 16,067.88 | 10,560.00 |
| Port expense | 9,154.88 | 2,720.00 |
| Insurance | 17,452.05 | 7,611.52 |
| Other expense | 5,634.62 | 960.00 |
| Depreciation | 36,058.27 | 19,883.52 |

| | | |
|------------------|--------------|-------------|
| Total 56 days | \$154,739.43 | |
| " 63 days | | \$76,630.73 |
| Or per day | \$2,763.21 | \$1,216.36 |
| Or 56 days | \$154,739.43 | \$68,116.16 |

The above are purely operating and immediate overhead expenses, except interest on capital outlay, and does not include loading and discharging of cargo; handling of passengers and baggage; office expenses, commissions, etc.

Other comparisons are:

| | S.S. Pres. Hoover | S.S. Chichibu Maru |
|--|-------------------|--------------------|
| Crew | 336 | 265 |
| First class passengers.. | 307 | 243 |
| Second or special class | 133 | 95 |
| Steerage | 538 | 500 |
| Speed in nautical miles per hour | 20 | 20 |
| (practically alike) | | |
| Service speeds: | | |
| San Francisco-Honolulu | 19 | 18.5 |
| Honolulu-Yokohama | 18.9 | 16.4 |
| Yokohama-Honolulu | 18.34 | 17.2 |
| Honolulu-San Francisco | 18.34 | 17.4 |
| Fuel consumption per brake horse power | | |
| lbs. lbs. | | |
| per hour | 0.7 | 0.422 |
| Per round trip, tons | 7.597 | 2.972 |

For the next type of ships in the trade I have used the American S.S. President Wilson and the M.S. Hiye Maru. Calculated similarly to the two ships, President Hoover and Chi-

chibu Maru, I have determined that the cost per day is as follows:

S.S. Pres. Wilson, per day \$1,415.41
M.S. Hiye Maru, per day \$723.02

Please note that in both instances the American costs are from more than 95 per cent to 100 per cent higher.

Other comparisons are:

| | S.S. Pres. Wilson | M.S. Hiye Maru |
|---------------------------------|------------------------|--------------------|
| Crew | 207 | 137 |
| Passengers | 194 | 148 |
| Steerage | 660 | 138 |
| Horse power, indicated | 12,000 | brake 16,000 |
| Fuel consumption | 1.38 lbs. P.I.H.P.P.H. | 0.422 P.B.H.P.P.H. |
| Speed in nautical miles per hr. | 19 | 20 |
| Seattle-Yokohama | 15.6 | 15.6 |
| Yokohama-Seattle | 16.7 | 16.5 |

In both illustrations I have perforce had to use two radically different types of ships. In both cases one is a steamship and the other a motorship. In the latter comparison the President Wilson has been a few years of good service, while the Hiye Maru is comparatively new. This makes a radical difference in depreciation.

It may be interesting, therefore, theoretically at least, to build the President Hoover type and the President Wilson type in Japan, man them with Japanese crews and include the usual Japanese government operating or service subsidy. This will in a practical manner show the radical handicap the American owner must meet in the Trans-Pacific trade.

Based upon positive information at hand I have very closely estimated the cost of building the President Hoover type to be:

| | Total Cost | Cost per Gross Ton |
|---------------------|----------------|--------------------|
| United States | \$7,888,000.00 | \$259.39 |
| Japan | 4,721,905.65 | 219.45 |
| Gt. Britain | 5,194,634.14 | 241.42 |

Hence it costs 63.86 per cent. more

to build this type in America than in Japan. The difference would be greater for a more conservative or simpler type.

In the following calculations I am utilizing the estimated expense of S.S. President Coolidge, sister ship to S.S. President Hoover. In these calculations I have only used items of fixed expense on which there is the greatest disparity. Other items such as fuel, port, stevedoring and other expenses would naturally be alike for like ships under similar conditions in the same trade. The round trip is based upon 56 days.

The present mail contract paid American owners per ship per year of the President Coolidge type does not come within one half of the

President Coolidge type:

| | American Flag | Japanese Flag |
|--|---------------|---------------|
| Wages | \$26,860.96 | \$12,931.12 |
| Subsistence, crew | 11,835.60 | 3,907.68 |
| Depreciation, 3 per cent. | 26,058.27 | 21,733.60 |
| Insurance, 1 5/16 per cent. | 17,452.05 | 9,508.80 |
| Interest, 5 per cent. | 60,430.80 | 36,221.36 |
| Repairs | 6,793.92 | 2,717.57 |
| | \$159,431.60 | \$88,020.13 |
| Less Japanese Government subsidy (yen 216,613.61 at 32 cents) | | \$69,316.35 |
| | | \$18,703.78 |
| American total costs per round trip | | \$159,431.58 |
| Japanese net costs per round trip | | \$18,703.78 |
| American owner's handicap on round | | \$140,727.80 |
| American owner's handicap per day | | \$ 2,513.00 |
| American subsidy per ship per year necessary to remove this handicap | | \$917,245.00 |

amount specified, viz., \$917,245.00.

The same statement holds true of the following totals outlined for the 535 foot and the 502 foot types.

The wages tabulated above show a cost of 92.8 per cent. more on an American than on a Japanese ship. Similarly food or subsistence costs are 202 per cent more on an American ship than on a Japanese ship.

Dry docking, repairs, cleaning, painting, remodeling, etc., are done by the Japanese at the cheapest point, be that Japan or China. The American owner must do these things in America or pay duty on work performed.

S.S. President Wilson (535') type

Again I have closely estimated the cost of building in the various countries, based upon bids and quotations of actual building costs:

| | Total Cost | Cost per Gross Ton |
|---------------|----------------|--------------------|
| United States | \$5,142,410.51 | \$364.29 |
| Japan | 1,996,144.22 | 141.38 |
| Scandinavia | 3,305,540.28 | 234.12 |
| Gt. Britain | 4,068,672.23 | 288.17 |

On the above basis the cost in America is 158 per cent greater than in Japan.

Operating costs for a 56 day round trip for the S.S. President Wilson (535') type would be:

| | American Flag | Japanese Flag |
|---|---------------|---------------|
| Wages | \$16,847.60 | \$9,081.64 |
| Subsistence | 7,375.20 | 2,360.96 |
| Deprec'n 3/4 | 22,674.00 | 9,187.92 |
| Insurance, | | |
| 1 5/16% | 10,357.20 | 4,019.68 |
| Interest, 5 1/4% | 39,456.48 | 15,313.20 |
| Repairs | 11,649.68 | 4,659.87 |
| Total 56 days.. | \$109,360.16 | \$44,623.27 |
| Less Japanese Govt. subsidy (yen 123,930.93 at 32c) | | \$39,657.90 |
| | | \$ 4,965.37 |
| American total cost per round trip | | \$109,360.16 |
| Japanese net cost per round trip | | 4,965.37 |

| | |
|--|--------------|
| American owner's handicap | \$104,394.79 |
| Or per day | \$ 1,864.19 |
| American subsidy per ship per year necessary to remove this handicap | \$680,429.35 |

Wages tabulated above show a handicap to the American owner of 85.5 per cent, while subsistence costs 212 per cent. more on an American ship than on a Japanese ship.

Similarly to above careful analysis of the third type of ship determines the following:

S.S. President Harrison (502') type:

| | American Flag | Japanese Flag |
|--|---------------|---------------|
| Total for 56 days | \$84,560.80 | \$33,778.08 |
| Less Japanese Government subsidy | | 21,127.98 |
| Net cost to Japanese | | \$12,650.10 |
| American subsidy per ship per year necessary to remove this handicap | | \$486,703.80 |

We have already noted how the Japanese cargo fleet is being built up to the highest possible efficiency with new vessels of the latest approved type as to economy, suitability for the trade and speed.

Based upon wages and subsistence costs only, our freighters compare per month in the trans-Pacific trade as per Table No. 2:

The Japanese wage scale is controlled by "Kaiji Kyodo Kai," meaning "Marine Union Association." This association is composed of representatives of The Japanese Ship-owners Association, The Mercantile Marine Officers Association, and The Japan Seamen's Union. Its functions cover:

1. Prevention and arbitration of disputes between shipowners and seamen.
2. Study of problems relating to conditions of maritime employment.
3. Conducting a seamen's employment exchange.
4. Maintenance of seamen's homes and institutes.

In 1930 the Marine Union Association arbitrated a serious coastwise strike at which time minimum wage scales were established, as in Table No. 3. These are in effect now.

Japanese officers are paid in accordance with size of ship, horsepower of engines, length of run. The larger the ship, the higher the horse-

power, the longer the run, the higher the pay.

Japanese owners are very paternal

in their dealings with their officers and men. Some reward length of service, large ship, more horsepower, length of run, or other unusual circumstances, with a navigation allowance and/or a bonus.

For wages, expressed in dollars as in Table No. 4, the exchanges used are: Scandinavian, 26.75c to one krone; British, \$4.86 to one pound sterling; Japanese, 32c to one yen.

I note from some of the purely trans-Pacific freighters that the owners pay only the minimum scale as above. Others, as stated, pay a navigation allowance and/or a bonus.

The American owners are paying a higher scale than that above, as in most cases the 10 per cent reduction during the late difficult period has now been restored.

We have now studied Japanese subsidies and low wages as compared to the American costs. We have also learned of the speed with which a new, fast and commodious Japanese fleet is being built and the reason therefore being to capture world markets.

The Canadian government pays a subsidy to the carriers in the trans Pacific trade. The Canadian Pacific Steamship Company has the powerful Canadian Pacific Railway to draw cargo and passengers from likewise the same link of steamer from Canada to Europe. This in itself is a competitive feature of a mean proportion, and naturally is

TABLE No. 2

| Name | Gross Tons | No. Crew | Cost per Month |
|-----------------|------------|----------|----------------|
| Venice Maru | 6571 | 38 | \$1,344.7 |
| Montreal Maru | 6576 | 36 | 1,224.0 |
| Amagisan Maru | 3662 | 49 | 966.3 |
| Oregon Maru | 5873 | 38 | 1,061.6 |
| Atlantic Maru | 5873 | 38 | 1,052.1 |
| Holland Maru | 5870 | 44 | 1,158.2 |
| Burma Maru | 4585 | 57 | 1,080.2 |
| As against: | | | |
| Bellingham | 5940 | 38 | \$3,282.5 |
| Margaret Dollar | 7030 | 31 | 2,846.0 |

In the long route trade, say New York-Orient, the Japanese pay a higher wage. Here are a couple of the new, fast motorships:

| | | | |
|-----------|------|----|-----------|
| Toba Maru | 6995 | 60 | \$2,076.6 |
| Kuma Maru | 6550 | 55 | 1,924.3 |

TABLE NO. 3

Minimum monthly pay in the offshore or foreign trade:
Deck Officers:

| Gross Tons | Captain | First Officer | Second Officer | Third Officer |
|-----------------------|------------|---------------|----------------|---------------|
| Less than 2,000 | yen 190.00 | 115.00 | 85.00 | 70.00 |
| 2,000 to 3,500 | 200.00 | 130.00 | 90.00 | 75.00 |
| More than 3,500 | 210.00 | 135.00 | 95.00 | 75.00 |

Engineers:

| Horsepower | Chief Engineer | First Assistant | Second Assistant | Third Assistant |
|-----------------------|----------------|-----------------|------------------|-----------------|
| Less than 1,200 | yen 190.00 | 115.00 | 75.00 | 70.00 |
| 1,200 to 2,000 | 200.00 | 120.00 | 80.00 | 75.00 |
| More than 2,000 | 210.00 | 135.00 | 95.00 | 75.00 |

Wireless Operators:

| Gross tons | Class 1, Any Ocean | Class 2 |
|------------------------------|--------------------|-----------|
| Gross tons under 2,000 | yen 85.00 | yen 70.00 |
| 2,000 to 3,000 | 95.00 | 80.00 |
| 3,000 to 4,000 | 105.00 | |
| 4,000 to 5,000 | 115.00 | |
| over 5,000 | 125.00 | |

Seamen:

| Position | Length of Service At Sea | Gross Tons 500 to 1500 | Gross Tons 1500 to 3500 | Gross Tons More Than 3500 |
|---------------------------------------|--------------------------|------------------------|-------------------------|---------------------------|
| Boatswain..... | 8 years | yen 65.00 | yen 70.00 | yen 75.00 |
| Chief fireman..... | | | | |
| Chief Oiler..... | | | | |
| Steward..... | | | | |
| Carpenter..... | 4 years | yen 60.00 | yen 65.00 | yen 70.00 |
| Quartermaster..... | | | | |
| Seamen..... | | | | |
| Oilers..... | | yen 50.00 | yen 55.00 | yen 57.00 |
| Cook..... | 2 years | yen 35.00 | yen 38.00 | yen 40.00 |
| Ordinary seamen..... | | | | |
| Firemen..... | | | | |
| Coal passers..... | | | | |
| Cook apprentice..... | 2 years | yen 35.00 | yen 38.00 | yen 38.00 |
| Waiters..... | | | | |
| Apprentices: 6 months enrollment..... | | | | yen 15.00 |
| 7 to 12 months enrollment..... | | | | 30.00 |
| 12 to 18 months enrollment..... | | | | 35.00 |

corresponding handicap to the American Merchant Marine both trans-Pacific and trans-Atlantic.

Conferences have lately been held in England and promulgation for subsidizing the lowly tramp undertaken. The present scheme formulated by the tramp committee is for a subsidy of two millions pounds sterling for cargo liners and tramp vessels trading under tramp conditions. Cargo liners on the berth are not included. It is presumed that cargo liners on the berth will formulate a scheme suitable to their particular conditions.

For the past year the Shipping Board Bureau has held meetings on both coasts regarding untrammelled competition. In these meetings were brought out that foreign lines were cutting rates so far below justified conference rates as to make earnings completely unremunerative; in fact, gross earnings innumerable instances were below cost of handling before ship left loading berth. If this is permitted to continue it can have but one effect, to drive the American

flag off the sea.

To sum up:

The handicaps which completely

tie the hands of the American owner trying to develop and afford adequate service in the foreign trades are:

1. Ships built under war stress and now fast becoming, in fact are, obsolete and costly to operate.

2. Initial cost of building new tonnage to protect business secured at high expense and under extreme competitive features. This high cost must be overcome in some manner to permit the American owner a fair show at holding his own against foreign owners in the same trade.

3. The cost of repairs, cleaning, painting, scraping and chipping rust, remodelling of accommodations, renewals of worn out parts, and modernizing are almost prohibitive as against a foreign owner who is permitted to do this wherever it is cheapest and does not have to pay duty on same.

4. Cost of operation is, as we have seen above, very materially higher than for the foreign owner. Likewise offices, office help and other overhead bear a like increase in cost to the American owner.

5. The increased tendency (not so prevalent in this country) of nationals demanding their goods be shipped on their flag vessels. This is also true of passenger travel.

6. Increased subsidy by foreign governments to permit their nation-

(Page 312 Please)

TABLE No. 4
This wage scale is for freighters:

| | Scandinavian Motorship | British Motorship | Japanese Minimum Scale | American Ships |
|--------------------------|------------------------|-------------------|------------------------|----------------|
| Master | \$267.50 | \$218.70 | \$67.20 | \$250.00 |
| First Officer | 140.00 | 109.35 | 43.20 | 150.00 |
| Second Officer | 113.69 | 85.05 | 30.40 | 130.00 |
| Third Officer | 73.56 | 63.18 | 24.06 | 115.00 |
| Fourth Officer | 88.88 | 71.28 | 23.60 | 100.00 |
| Wireless | 42.80 | 55.89 | 22.40 | 75.00 |
| Carpenter | 42.80 | 55.89 | 24.00 | 55.00 |
| Boatswain | 38.52 | 48.60 | 18.24 | 45.00 |
| Sailors | 20.60 | ..... | 12.80 | 30.00 |
| Ordinary Seamen..... | 41.20 | ..... | 18.24 | ..... |
| Quartermasters | 187.25 | 218.70 | 67.20 | 220.00 |
| Chief Engineer | 133.75 | 136.08 | 43.20 | 150.00 |
| 1st Asst. Engineer | 107.00 | 106.92 | 30.40 | 130.00 |
| 2nd Asst. Engineer | 93.63 | 71.44 | 24.00 | 115.00 |
| 3rd Asst. Engineer | 54.44 | 53.46 | 24.00 | 80.00 |
| Junior Engineer..... | 47.08 | ..... | ..... | ..... |
| Boilermaker..... | 42.80 | 87.48 | ..... | 110.00 |
| Refrigeration Eng. | 42.80 | 77.76 | 32.00 | 90.00 |
| Electrician | 42.80 | 55.89 | 24.00 | ..... |
| Motormen | 41.20 | 53.46 | 18.24 | 50.00 |
| Oilers | 39.86 | 51.03 | 24.00 | 45.00 |
| Firemen | 21.94 | ..... | 12.80 | ..... |
| Coal Passers | 61.13 | 65.61 | 24.00 | 85.00 |
| Steward | 48.15 | 65.61 | 18.24 | 50.00 |
| Cook | 24.08 | 46.17 | 12.80 | 27.00 |
| Asst. Cook | 16.59 | ..... | 12.16 | 27.00 |
| Mess Boys ..... | ..... | ..... | ..... | ..... |

Trans-Pacific Problems

American Flag Cargo Carriers

By Howard N. Middleton

General Freight Agent, Oceanic and Oriental Navigation Company

We on the Pacific Coast would indeed be ungracious to criticize the foreign shipping that has played such an important part in our development and in the extension of our foreign trade, nevertheless we must not fail to appreciate the fundamental advantage to our national welfare of creating and maintaining American flag services in these vital trade routes. On several occasions our farmers and merchants have been confronted with the stern reality of failing to have adequate shipping with which to transport their products or merchandise and such contingencies necessarily disarrange the equilibrium of supply and demand and result in soaring freight rates and obstructed business.

With highest regard for the integrity and well meaning of foreign operators, it is not a far cry to anticipate a foreign war that would re-allocate much of the foreign tonnage now plying in the trans-Pacific trade, leaving shippers in distress unless they have a back log in American tonnage. While perhaps far fetched it is not unparallel to think of our intercoastal and coastwise services being in the hands of foreign owners by virtue of their lower costs and operating expenses, and

except for our coastwise laws protecting American vessels in these trades such a situation might very easily exist. If this were true a crisis in any part of the world might make it expedient for the foreign owner to withdraw his vessels and thereby disrupt our domestic welfare. Our merchant would be deprived of that element of consistency that has become such a vital part of his operation, yet if we were accustomed to such a condition it might be difficult to realize what we were losing by not taking it into our own control.

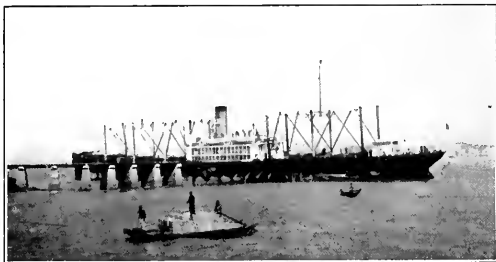
Blood still runs thicker than water and unfortunately for the American ship owner, especially in the trans-Pacific trade, the foreign merchant has been much readier to acknowledge the truth of this than has his American colleague. A foreign buyer thinks in terms of cost, freight and insurance—an American seller more frequently in terms of free on board. Perhaps this difference is because the transaction seems less involved to the American merchant or perhaps our vast inland population is less acquainted with ships and shipping and less influenced by national psychology than the peoples of the more concentrated maritime states, but regardless of this the Japanese

have followed the pattern of the British merchant rather than the American and have become accustomed to buying and selling Japanese freight space along with the commodities in which they deal, which, of course, we cannot help but respect.

The extension of Japan's interests in Manchuria offers an interesting speculation along this line for while she has reiterated her intention of maintaining the open door in this territory, it seems unlikely that it will be done with as complete impartiality as it has in the past. This, of course, offers a new problem to the American flag carrier insofar as finding cargoes in North China is concerned.

● Petroleum Products

Petroleum products such as gasoline, kerosene and lubricants sold in package form have always been a basic cargo for American freighters in the Orient. Unfortunately, this source of revenue has persistently declined in the past five or six years due largely not to the world depression as one might think but rather to an inherent change in the trade itself. Petroleum products have to a large extent stopped moving in cases and drums but instead are now carried in bulk by tankers that discharge at casing and refining plants located at strategic trade centers along the Japanese and Chinese coasts as well as in the Philippines. Even with this realignment in the trade, California's position is now threatened by increasing Russian competition. The Soviet-owned Saghalien oil fields are nearest Japan and at present are under lease to Tokyo's North Saghalien Oil Company, headed by retired Vice-Admiral Juji Nakazato. These fields are



SS. Golden Hind working case oil at Amoy, China.

now producing in the neighborhood of 300,000 tons per annum, which is being used by the Japanese Navy. This lease expires in 1936 when Japan is hopeful of not only renewing but enlarging the operation so as to become independent of California and Dutch East India.

● The Philippines

The American flag freighter is also finding rough going in other parts of the Far East. For years we have thought of the Philippines as our distant frontier of American shipping but have recently awakened to find Philippine independence just around the corner with markets that have always been free to American trade curtailed by such barriers as the recent 3 cents per pound excise tax on cocoanut oil which is crushed from copra that comes from this territory. Copra has always been our most dependable homeward cargo and leading import from the Philippines. Likewise, its production has given the Philippines capital with which to become America's best customer in the Far East.

It is unthinkable that any other power in the world today would so willingly release such a wealthy part of its domain and such a valuable trading advantage as we have in these Islands. There is also a matter of very grave speculation as to what advantage might be derived from this cherished independence by the Islanders themselves, when it is remembered they are coveted by every other power in the Orient and wholly unable to protect that independence. From the broadest point of view it seems unfortunate that our stake in the Philippines should be sacrificed on the altar of selfish interests at



S.S. Golden Mountain loading copra at Tacloban, P. I.

home, which is beyond doubt the case, any more than we would sacrifice our interests in Hawaii or Alaska.

● Tariff Barriers

A few years ago our ships returned from Tsingtao, China, laden with many tons of peanuts. Overnight the trade was stopped by the assessment of a 7c per pound duty which was part of the tariff act of 1930. Such duties do not contemplate equalizing the American grower's position with that of his foreign competitor but are obviously prohibitive and in the nature of an embargo. Can the United States and all other countries that have so blindly followed this idea of selfcontainment profit by dissipating the purchasing power of their customers? Yet for the last decade the world has unsparingly followed this principle. It was a grievous mistake when a Senator from Indiana, in defending the action of his party in passing the Smoot-Hawley Tariff, said our exports are relatively unimportant as they comprise only 10 per cent of our production, and when he predicted in positive terms that

within thirty days after the tariff became effective we would witness a great revival of our national prosperity. Time has taught that we witnessed much the opposite and the experience leaves much to be hoped for in the present administration's idea of reciprocal tariffs which have so recently been instituted in relation to Cuba.

I fully appreciate the benefits of the National Recovery Act. However, it has noticeably widened the breach already recognized between our own and foreign costs of construction and operation which are roughly about one hundred per cent in favor of the foreign owner. The one hundred and first edition of Lloyd's Register of Shipping just recently published for the year 1934, shows how ships now building in the United States rank ninth among the nations of the world, which is, no doubt, caused by the cloud that our mail contract investigation has thrown upon the industry. To the layman the expenditures under these mail contracts (subsidies, if you please) no doubt appear excessive, but our war time lesson is still an unhappy memory of having to establish a merchant marine overnight at any cost, and its subsequent operation under Shipping Board supervision was many times more costly than it has been under private operation. No American operator should fear an investigation into the honest administration of these funds and it is sincerely hoped that our system of governmental aid will not be assailed to a point where it will undo the good already done and return us to that unfortunate position in which we found ourselves upon our entry into the war.



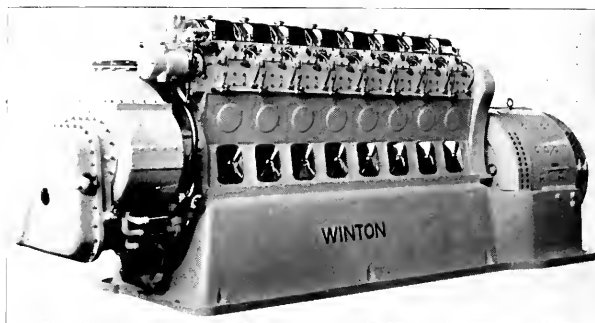
S.S. Golden Dragon working cargo at Hongkong.

Development of New High Speed Train Power Plant

The important place that General Motors Corporation now holds in the broad field of transportation, on land, in the air, and at sea, has again been emphasized by the recent development of a Diesel-powered, high-speed passenger train for the Burlington Railroad. This new railroad equipment has created more interest on the part of the general public than any other new mechanical achievement since the general introduction of the motor car, and it is most significant that to the great engineering resources of General Motors goes the credit for developing a Diesel power plant suitable for this service.

The introduction of this new train, as well as the installation therein of a Diesel engine designed by General Motors engineers, is not surprising to those who have been in close touch with recent developments in the Diesel engine industry. High-speed, streamlined passenger trains for main-line service are, of course, possible without the Diesel engine, but it is the Diesel engine, as developed by General Motors, that has made this type of railroad equipment a serious contestant in present day competition for the country's passenger traffic. This is due to the fact that General Motors has supplemented the basic economy of the Diesel-type engine with engineering advances and refinements which have made the Diesel engine installed in the Burlington train entirely practical from a railroad operating standpoint. This engine, as now designed and built at the Winton plant, Cleveland, Ohio, a subsidiary of General Motors, meets every demand of modern railroad service. It has thoroughly demonstrated that it provides the operating characteristics required for long-continued, non-stop runs, and also that it is simple to operate and delightfully clean.

The history of the Diesel engine is a fascinating story of struggle and



Winton diesel-electric power plant as installed on the Burlington Zephyr.

achievement, and certainly not least in interest is the chapter that is now being written with reference to the application of this type of power to main-line railroad service. In view of the fact that we have had Diesel engines in operation in this country, particularly in the marine and industrial fields, for the past twenty years, it is quite reasonable to ask "What has General Motors done to the Diesel engine to make it suitable for main-line, high-speed railroad passenger trains?" The answer may be found in three revolutionary engineering achievements which have recently been effected by General Motors engineers.

The first of these has to do with a decidedly improved method of injecting fuel into the cylinders of a Diesel engine. The second is what is called the uni-flow, two cycle principle, which has been brought to its highest state of development in the General Motors Research Laboratories at Detroit. The third achievement is the introduction of welded steel plate construction, which provides a light, rigid, durable power plant.

Without becoming technical, it may be stated that the combination of these three features has brought the Diesel engine along to the point

where it has received the unqualified endorsement of railroad executives, and that it now promises to become a major factor in railroad operation. This means, of course, that it has become an achievement of the first order in the transportation world, and because of what it promises for the future, it is significant that the development has been brought to the railroads by the great engineering facilities of General Motors.

There is rather an interesting story in connection with the development of the new method of fuel injection incorporated in this engine. In 1928, after a long period of research work carried on by Winton engineers, Mr. Kettering, President of General Motors Research Laboratories, installed a pair of Winton-Diesel engines in his yacht "Olive K".

There was nothing extraordinary about this fact in itself. However, there was a particular feature of this installation that was of vital interest to Mr. Kettering and to the Winton engineers, who designed, built and installed the power plant. This feature was the special unit injection system developed by Winton engineers, and which Mr. Kettering

recognized as an engineering advance that was destined to revolutionize the Diesel engine industry.

After the engines were installed in his yacht, Mr. Kettering put his research engineers to work on the refinement and further development of the new method of fuel injection. At the same time, Winton engineers were put to work on this task also. Out of this combined effort came much valuable engineering data which helped materially in effecting improved design. For a great many years Winton had been powering railroad cars with gasoline and distillate-burning engines and their outstanding success in that field convinced them that the ideal power plant for such service was a suitable Diesel engine. In view of this conviction, Mr. Kettering and his engineers, while working in the broad field of improving the Diesel engine generally for all kinds of service, pointed also to the perfection of a Diesel power plant that could be applied to railroad transportation. They started out with a single cylinder engine to ascertain the limitations of what could be done with this type of power. Winton engineers continued their development work along the same line. They were far enough

along at the time the World's Fair opened to build and install a two-cycle plant for power and light in the General Motors Building at the exposition.

The experience gained with this engine enabled Winton to secure information which justified the corporation in contracting for an experimental engine for the Navy Department, which was built and delivered in 1933. The two engines installed in the General Motors Building at Chicago are 600 horsepower units and the Navy engine is a 900 horsepower unit. The experience gained with this 900 horsepower Navy engine led directly to the design and construction of the engine for the Burlington "Zephyr", from which has been developed Winton's present line of Diesel power plants for railroad application.

The conclusion seems to be inevitable that the railroad world will continue to offer increasing rewards to those who can apply modern power to the public service and who have sufficient initiative and versatility to do this fundamental job with the best tools in the way of finance, ownership and equipment. This description most certainly seems to fit General Motors.

A Sea-Farin' Metal

Because of the corrosion problem presented by many metal parts on boats and ships in ocean service, it is only natural that investigations should have been made of the ability of stainless steel to withstand the action of salt water and that, as a result of these tests, its applications on ships are now numerous.

Some of the first tests were carried on by the British Institute of Civil Engineering and even the earliest reports indicated that neither part time nor continuous immersion in sea water had any appreciable effect on the stainless steels tested. Samples were placed in such a manner as to be exposed not only to the wind and rain but also to an almost continuous spraying of sea water. Subsequent inspection showed that, aside from a slight discoloration which was easily removed by rub-

bing, no damage whatever had been done to the exposed metal.

Since these first tests many pieces of stainless steel in actual service on ships have proved that the results were correct—that it is indeed resistant to salt water and sea air corrosion, and that it can be relied upon to keep its strength and luster unimpaired. The most important item in all these tests and uses has been the fact that absolutely no covering paint or plating is required on this steel. None whatsoever is needed to keep its shimmering luster as permanent as the steel itself.

For the galley all pots and pans, table tops, cutlery and even dishes themselves are now furnished in stainless steel. Aside from their non-rusting and non-tarnishing qualities, their brilliant beauty lends an air of cleanliness and sanitation,

and their all-metal construction renders them unbreakable.

Stainless steel for trim is now practically standard on pleasure craft and many large ships are also utilizing it. Parts such as handles, rails, port frames, windshield brackets, spot light holders and a myriad others are now safeguarded from rain, salt water, spilled oil and gasoline.

The real abilities of stainless steel are best utilized by that class of equipment that is actually a working part of the ship. Here corrosion resistance means so much more because a weakened part will endanger the safety of every passenger. In this class are riggings, cables and chains. Corrosion of such equipment is actually dangerous and must be watched closely. That is why many boats are now including in their equipment stainless steel parts wherever corrosion can be a serious problem. Other uses in this class that are not so spectacular but are very reassuring to the boat owners are for pump parts, shafts and gasoline tanks. In all of the applications in this group, the high strength of stainless steel is quite as important as its other advantages.

These are but a few of the many marine applications of stainless steel. With no protective coating of paints or lacquers necessary, with fabrication easily accomplished, and with installations everlasting, stainless steel is rapidly becoming the standard in ships large and small for every exposed metal part.

Trade Literature

The Maintenance of Reciprocating Parts, a new booklet by Linde Air Products Co., deals with the application by the oxy-acetylene process of wear-resisting bronze to the wearing surfaces of sliding parts. After a brief general discussion, the advantages of bronze-surfacing as an economical and efficient means of reclaiming pistons and similar wearing parts are fully set forth. The wide scope of the application is detailed at some length by mentioning examples of successful use of the process in a number of different fields.

... American Flag Ships

Protect Our Overseas Commerce

*An Analysis by Arthur M. Tode, National President of
The Propeller Club of the United States, Showing Necessity for
Sustaining Our Merchant Marine*

Perhaps it will be news to Secretary Wallace, but millions of our citizens need not be reminded of the irreparable loss suffered by American agriculturists and industrialists at the outbreak of the World War in Europe because of the lack of American shipping facilities to transport their goods abroad and to obtain imports needed to help keep factories running. It was estimated that the loss to agriculture alone amounted to \$600,000,000, or more than enough to pay the present shipping subsidy for twenty years. Every American over thirty years old remembers the "Buy a Bale of Cotton" campaign which saved southern agriculturists from threatened ruin in 1914 because no ships were available to carry their cotton abroad. American men and women purchased that cotton from the grower pending the establishment of facilities to move it overseas. Again, after the war, a British coal strike resulted in the desertion of southern ports by the vessels upon which the cotton raisers depended for the export of their crop. The Shipping Board saved the cotton growers by promptly placing sufficient American tonnage on berth. Going back to 1899, the Boer War provides another instance when American industry suffered because we had "concentrated on the exploitation of our rich internal resources, leaving to foreigners the carrying trade."

As Secretary of Agriculture, Mr. Wallace's first thoughts are of the agricultural industry. But agriculture like many of our other activities, depends for its well-being on the export of surpluses which cannot be sold and consumed at home. In normal times (1930), 2,000,000 American families depend directly for

THE WALLACE ARGUMENT

In short, the Honorable Secretary of Agriculture would "plow under" the American Merchant Marine. His letter to Mr. Bland, reveals his attitude in part as follows:

"Any further governmental encouragement of the shipping industry by subsidy or similar measures would tend to divert the energies of our people in some degree into shipping as compared with other industries.

"Is it not possible that it may be more to our economic advantage as a nation to concentrate on the exploitation of our rich internal resources, leaving partly to foreigners the carrying trade, in which our natural advantages over them are not as great as in other forms of production?

"In a sense, too, allowing foreigners to carry a large percentage of our trade promotes our commodity exports, for it means that foreigners have more purchasing power with which to buy them.

"We cannot hope to profit from exports unless we are willing to take imports in payment. This applies to single 'invisible' imports in the form of shipping services rendered by foreigners as well as commodity imports.

"You state that shipping is as much entitled to protection as industry and agriculture. But it should not be overlooked that a substantial part of our agriculture cannot be effectively protected, because we normally have export surpluses of cotton, lard and other farm products.

"If we further protect shipping, we shall export less of our farm commodities."

*Pacific
Marine Review*

their livelihood on the sale abroad of our export commodities. In 1931, raw and manufactured agricultural products with a value of over \$693,000,000 accounted for 28.6 per cent of our total exports.

Mr. Wallace asserts the ability of other countries to buy our exportable surpluses will be enhanced if we so arrange our affairs as to permit the ships of these countries to carry a large percentage of our trade. But that is exactly what we are doing today! American ships carry only one-third by value and two-fifths by volume of our exports and imports.

History does not bear out these contentions. One need only revert to the years between 1890 and 1910 when American ships carried less than 10 per cent of our waterborne foreign commerce. True, our trade with other nations showed a steady growth during that period, reaching a value of \$2,973,000,000 in 1910. But in the peak year of 1920, when our waterborne foreign commerce reached \$11,983,000,000, American ships transported 44 per cent. With the decline in world business, our overseas trade fell to \$5,803,000,000 in 1930, while American ships' share of the carrying dropped to 35 per cent; but, let it be observed, the 1930 figure was almost double that of 1910 when, as previously noted, the number of American ships engaged in overseas trade could be counted on one's fingers and toes.

It is apparent therefore that the advent of American ships into the field of carrying American imports and exports served in no way as a deterrent to the purchase of our goods by other nations. On the contrary, as the number of American ships increased, our foreign trade in-

creased, as also the percentage of that trade carried in American bottoms. It is difficult to define accurately the percentage of growth in trade which may be attributed to a nation's shipping, but there is no question that it is essential to any nation to possess and operate a merchant marine of sufficient capacity to carry a substantial part of its products to world markets in order to exercise a measure of control over freight rates and to lend that highly necessary aid to the creation, maintenance and growth of foreign markets attainable only through its own ships.

● Administration Attitude

Next month, the inquiry which the American marine industry hopes will prove to be "the Investigation to End Investigations" will get under way when the Post Office Department opens its examination into the affairs of American steamship companies relative to ocean mail contracts. The avowed purpose of the proceeding, pursuant to an executive order, is to investigate all such contracts and make recommendations "relative to their modification or cancellation."

In January, the Postmaster General will submit his report, not to Congress but to the President. With every assurance of fair treatment, American shipping interests welcome this investigation. No member of the investigating board is prompted by any motive of self-aggrandizement, and there is no question but that the President holds a sympathetic attitude toward the American Merchant Marine.

A study of his statements makes it apparent President Roosevelt is in full agreement with everyone having the best interests of the American Merchant Marine at heart regarding the one principle which transcends all others in importance. That is that American shipping is a vital necessity for the maintenance and development of our foreign trade and as an adjunct of our Navy, and to become fully effective or even to exist under present conditions, American shipping in competition with foreign shipping must be accorded some form of government assistance.

That some other method of subsidy will eventually be substituted by Congress for the present mail contract system seems a foregone

conclusion. The President has declared for a "bald" subsidy. The Black committee investigation has emphasized the weakness of the mail contract subvention. The very name is misleading and enables enemies of American shipping to portray the system in an entirely unfair light before the eyes of the public.

● Effects of Jones-White Act

To some, the Jones-White Act has been a disappointment because it has not resulted in the construction of a greater number of new ships. Even if all the vessels required by the mail contracts now in force are completed within the time specified, and no others built during that period, America will possess in 1940 only about 75 vessels in its foreign service merchant marine less than twelve years old. The warbuilt fleet which today constitutes the bulk of our merchant marine in foreign trade cannot last indefinitely.

Despite the construction loan and mail contract features of the law, American companies have not built in sufficient numbers to take care of replacements which will be necessary in the next few years, let alone increase American tonnage in foreign trade. The primary reason, of course, is the economic condition which has prevailed during the past five years. Our trade, in common with that of other nations, has shrunk to about one-third of its peak proportions. Faced with this situation, and with no means of foretelling the future, American companies cannot be condemned for hesitating to add to their investment in tonnage. With little incentive in the

form of cargoes, these companies must nevertheless be given full credit for having constructed those vessels which were produced by American shipyards during this period of steadily falling business. The merchant vessel construction enabled the shipyards to maintain their plant and equipment and be prepared to handle the present naval construction program. Ships built and reconditioned as required by ocean mail contracts during the five years of the depression represented almost \$161,000,000 in business to the American shipbuilding industry.

While the ocean mail contract system may not have resulted in the construction of greater numbers of ships, while it may not have brought about any appreciable increase in the percentage of American goods carried in American bottoms, and while there is undoubtedly basis for criticism on the ground that it has not caused certain American companies to concentrate more intensively on the development of American shipping, the fault lies not so much with the act itself as with conditions over which the shipowner has no control.

● Foreign Merchant Shipbuilding

Meanwhile, foreign nations far worse off economically than the United States have been far from inactive in ship construction. With the three-fold purpose of capturing a greater share of our ocean carrying commerce, of increasing their own (often at our expense) and of improving their ability to serve industry and commerce at home, practically every maritime nation has pro-



ceeded with the construction of additional ships. Of the tonnage owned in Great Britain and Ireland, 10.6 per cent is less than five years old. Figures for other countries are Norway 25.3 per cent; Denmark 17.4; Holland 15.8; France 14.7; Sweden 11.1; Spain 12.8; and Japan 12.7 per cent. Only 5.6 per cent of American ships are less than five years old.

With the ocean mail contract system headed for discard, the question arises as to what form future subsidies must take. First, the American shipowner must have vessels which represent no greater initial investment than those of his foreign competitor, for on initial cost depends interest, depreciation and insurance. This equalization of cost is a problem difficult of solution, for conditions are subject to change in any trade. Today, the American owner operating ships in a regular service may be confronted with, let us say, British and French competition, enjoying not only lower first cost but lower expense for wages, subsistence, repairs and the hundred and one items that enter into ship operation. Tomorrow, Japanese ships enjoying still lower investment and operating costs enter the trade. There is no international law or agreement to keep them out. While the American, British and French lines may have been operating in a conference, the Japanese still further complicate the situation by refusing to join. Immediately the picture is altered for all three original lines. This hypothetical situation which may very easily happen is cited to indicate that no hard and fast rule can be laid down; flexibility must be provided for, with such discretion as may be necessary lodged with the administrative agency.

● A 50-50 Proposition

No one yard-stick can be used to measure every trade. Conditions confronting American shipping on one route may not apply on another. Differences in degree of competition; subsidies which foreign lines may enjoy; the necessity for combating foreign trade penetration on the part of nations which would compete not for the carrying between ports in that particular trade but for the trade itself—all these and many other factors enter into the problem.

Due consideration must be given

to the rights of foreign nations and their shipping in any solution. While the writer yields to no one in advocating the carrying of at least one-half of our foreign trade, export and import, in American bottoms, it is apparent that the ships of any nation with which we maintain trade have an equal right to participate in that trade. In this connection, it is the writer's opinion that the joint resolution adopted by the last Congress making it mandatory that in cases where the United States grants loans or credits to foreign countries to be used in purchasing American goods, one hundred per cent of such goods must be transported in American ships, was a most ill-advised move. To be sure, the so-called Johnson act almost completely eliminated the granting of such loans or credits, but the damage was already done. Foreign steamship companies lost no time in employing as propaganda against American shipping the information that the United States government had decreed 100 per cent patronage for American ships. It mattered little that this decree had no bearing on the business of private firms abroad—antagonism against American steamship companies was fostered by the clever manner in which the case was presented by foreign lines.

Be it said that American shipping interests at no time asked for more than half of such cargo movements, and to that share at least they had a perfect right.

Nor do those who are sincerely interested in the upbuilding of the American Merchant Marine seek any greater proportion than one-half of our total foreign trade carrying. In the efforts directed toward securing that share for American ships, all the patriotic appeals and cold economic logic are of little use unless American steamship companies are able to offer physical facilities and quality of service at least equal to those of their foreign competitors. Therefore, the primary objective in any plan of subsidy is the provision for construction of ships to replace those which are rapidly approaching the retirement age and which have already been outmoded by newer, faster and more modern vessels now operated by our foreign competitors.

It is just a year since the United States Shipping Board ceased to ex-

ist as an independent government agency and became a part of the Department of Commerce. While the old Shipping Board had its shortcomings, the American marine industry is convinced that the new arrangement is a far less effective and satisfactory one. As a bureau of the Department of Commerce, the present set-up has lost much of the prestige formerly accorded the Board, and it seems to the writer that the affairs of the American Merchant Marine would be administered in better fashion by an agency similar to the Interstate Commerce Commission, free of any connection with any other branch of the federal government.

● Maritime Commission Needed

To protect properly the interests of water transportation and to promote the upbuilding of both American shipping and American overseas trade, the suggested commission should be non-partisan and non-political in its make-up, composed of men of high character, appointed on a long term basis. This commission should exercise general supervisory and regulatory powers over all forms of American shipping — overseas, coastwise, intercoastal and inland waterway—privately or government operated, with power to control rates and competitive practices, administer the shipping subsidy, supervise vessel construction, liquidate debts owing to the government on construction loans and ship purchases, extend credits, provide a means of co-ordination between shipping and heads of government departments, and generally encourage the upbuilding of the American Merchant Marine.

Properly constituted, free from executive interference, this body would be able to function far more satisfactorily than the present Shipping Board Bureau or the late Shipping Board.

With a constructive subsidy based on building and operating costs and with the weight of a commission such as this behind it, American shipping would be able to build up adequate shipping facilities for conserving the national security in times of emergency and for insuring in normal times the welfare and prosperity of American agriculture and industry.

..... A New Bulk Cement Coastwise Carrier

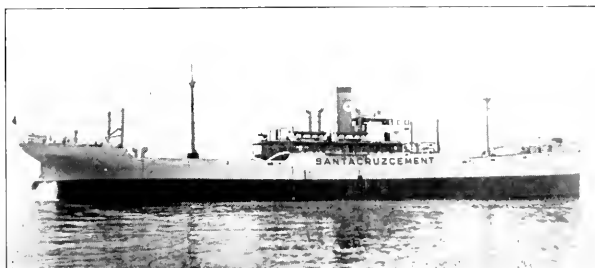
*Unusual Vessel Delivered by Sun Shipbuilding and Dry Dock Company
to the Santa Cruz Portland Cement Company of San Francisco*

A recent arrival on the Pacific Coast is the S.S. Santa Cruzement, a vessel whose internal construction is as unorthodox as her name. This steamer, formerly the United States Shipping Board cargo carrier, Pacific Cedar, was purchased by the Santa Cruz Portland Cement Company of San Francisco, California, and transformed into a bulk cement carrier at the plant of the Sun Shipbuilding and Dry Dock Company of Chester, Pennsylvania, the cost of reconstruction being approximately half a million dollars.

There are only a few such vessels in existence, and since this one is the most up-to-date of them all, the description and illustrations herewith should be of interest.

S.S. Pacific Cedar was one of a number of steamers built in Japan by the Mitsubishi Shipbuilding Company for the U. S. Shipping Board in 1919-1920. She is of the single screw, "three island" type, with general characteristics as follows:

Length between
perpendiculars400' 0"
Beam54' 6"



S.S. Santa Cruzement, new bulk cement carrier, on her builder's trials.

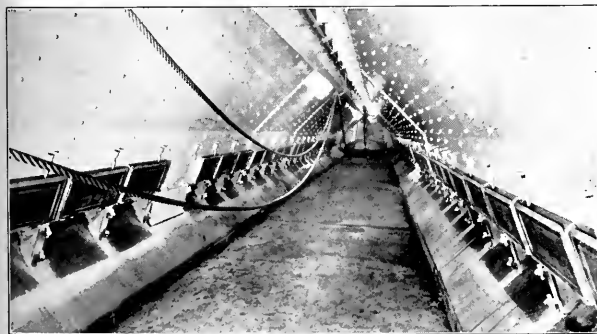
Depth molded30' 0"
Deadweight cargo capacity, 8460 tons
Bale cargo capacity.....422,712 cu. ft.
Boilers Scotch single-ended.....3
Boiler pressure200 lbs.
Engines, triple
expansion3000 I.H.P.

In the fall of 1933, the owners of this ship commissioned the firm of Pillsbury & Curtis, naval architects, engineers and marine surveyors of San Francisco, to supervise the conversion of this vessel. Pillsbury &

Curtis, represented by Walter L. Martignoni, a member of the firm, in conjunction with Theodore E. Ferris, naval architect and marine engineer, prepared the design plans and specifications covering the reconstruction work and the installation of cement loading and unloading machinery. Captain Pillsbury went East on one or two occasions to review work, and Captain Curtis, now located on the East coast, was consulted in the work. The actual supervision of the work at the Sun yard, together with the contractual arrangements and business part of the undertaking, has been under the direction of, and handled by Mr. Martignoni, acting in this capacity for Messrs. Pillsbury & Curtis.

● Reconstruction in Hull

The interior of the hull of Pacific Cedar contained five holds, the fore peak, and after peak tanks, and the machinery spaces. Plans for reconstruction divided the hull into spaces as follows, beginning at the bow: Fore peak; package cement hold; bulk cement bin holds Nos. 1, 2, 3; bulk cement handling machinery space; boiler room; engine room;



One of the cement unloading tunnels.

bulk cement bin holds Nos. 4 and 5; bulk cement handling machinery space; and after peak tank. These spaces were so arranged that the original watertight bulkheads were retained intact, except where they had to be pierced for bulk cement handling arrangements or recessed to gain greater cubic capacity.

The bulk cement holds or bins have a total capacity of 40,000 barrels of bulk cement and are of the self-trimming type with hopper bottoms. No surface in these holds is less than 45 degrees from the horizontal. They are formed by water-and-dust-proof longitudinal bulkheads, 33 inches from the ship's side port and starboard. The new transverse steel bulkheads dividing these holds are dust-proof steel construction. The bottom of these bins forms two vee-shaped troughs, and these troughs discharge through lineal openings into inverted vee tunnels on the tank top port and starboard. Under cargo bins No. 1 and No. 2, these lineal openings are fitted with hinged dustproof doors fastened by dogs, so that if desired special grades of cement can be carried in these bins and unloaded after the rest have been discharged. The doors are opened by an operator from the tunnel side.

• Bulk Cement Discharge

There are four of these tunnels,

two forward and two aft, and each is equipped with a Leatham Smith patented tunnel scraper of four cubic yards capacity, supported from an overhead trackway at the peak of the tunnel and dragged through by a special steel wire cable, operated by a Sauerman drag winch driven through silent chain by a 100 h.p. Westinghouse motor.

Each forward tunnel at its after end terminates in an inclined ramp, so that the scraper discharges its load into a hopper common to both forward tunnels, the hopper in turn discharging into the feed of a Fuller Kinyon high speed screw pump. This pump with the aid of injected compressed air discharges the cement ashore through a 12-inch pipe line.

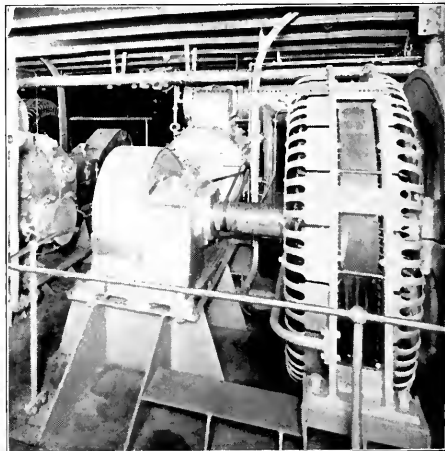
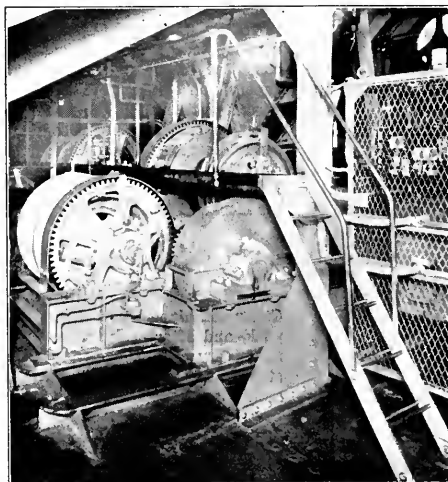
The pump is driven by a 250 h.p.-2300 volt, 3 phase 60 cycle, Westinghouse motor. Between the port and starboard tunnels approximately at the line of the beginning of the ramp, a steel operator's booth is built in forward and aft, and all control of the scraper machinery is from this booth. The central space between the tunnels on top of the tank top forward, and on top of the shaft alley aft, is used to accommodate the back haul cables of the scraper system. In way of the scraper tunnels a smooth surface is insured by welding heavy steel plates to the tank top and butt welding the edge joints. An

identical equipment discharges the two bulk cement holds aft of the engine room. These pumps have a rated capacity of 1000 barrels of cement per hour for each pump at 60 pounds pressure per square inch, so that the S.S. Santacruzement has a capacity to discharge 2000 barrels of bulk cement per hour.

Compressed air is furnished to the cement pumps by four reciprocating Chicago pneumatic two-stage air compressors, each driven by a 300 horsepower, 160 revolutions a minute, 2300 volt, three phase, 60 cycle, Westinghouse motor, and each having a capacity of 1500 cubic feet per minute of free air at 100 pounds pressure. Near each cement pump is installed an air receiver tank, 60 inches diameter, and 14 feet high.

• Electric Power Plant

To take care of this electric power load, a turbo-generating plant was installed consisting of 2 General Electric turbo generating sets, each turbine having a capacity of 1250 horsepower at 3600 revolutions per minute and 200 pounds boiler pressure. The generators are 2300 volt, 60 cycle three phase. In addition, there are a 25 kilowatt turbo-generator direct current 125 volts for main generator excitation, and a 75 kilowatt 230 volt alternating current, 125 volt



Left, Sauerman electric drag winch; right, Chicago pneumatic air compressors.

direct current induction motor generator set for motor excitation.

Each of these turbines has its own surface condenser, with circulating pumps, condensate pumps, and radiators with all necessary piping connections for steam delivery, steam exhaust, circulating water, and condensate.

A new 16-cycle switchboard provides for control of the two 1000 kilowatt generators, for 12 feeder circuits on the ship, and for one shore connection through which the ship may either supply current to a shore plant or take current from shore.

● Ventilation

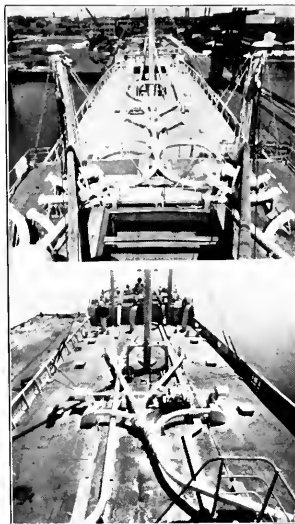
Each cargo machinery space is provided with mechanical ventilation by 11 3 horsepower motor driven fans, two being installed in the machinery space aft, two in the tween decks machinery space, forward, and two in the hold machinery space forward. Each operator's booth is supplied with clean pure air under pressure by a 5 horsepower motor driven blower, and these booths are kept under pressure to prevent entrance of cement dust.

Generators and motors have their ventilating systems reversed and are fed clean cool air from the outside atmosphere, discharging into their various compartments so as not to draw cement dust into the machinery.

The system for filling the ship with cement comprises two twelve-inch pipe lines with receiving connections both port and starboard amidships, both lines serving each cargo bin port and starboard through one 12-inch delivery at center of bin, each delivery connection being individually controlled by one Fuller-Kinyon two-way distributing valve. The layout of the deck piping system is clearly shown in the illustrations.

● Loading Cement

S.S. Santacruzement loads in an open roadstead at Davenport, California, and therefore was well provided with mooring and warping facilities. In addition to her steam windlass she has on the forecastle deck, directly aft of that machine, and on the center line of the ship, a 10-inch x 10-inch steam capstan. In the forward well, and in the after well, she has a large steam warping winch.



Arrangement of cement loading pipes on forward and after decks.

On the poop deck, in addition to the old warping winch, she has a new 9-inch x 9-inch steam capstan. All existing chocks and bitts were replaced by very heavy cast iron fittings, designed for 12-inch manila lines, and fair leaders were installed where deemed necessary.

● Package Cement

Aft of the forepeak bulkhead, a space is provided for carriage of package cement or of general cargo between that bulkhead and the dust tight bulkhead forming the forward end of the bulk cement bins. The scraper tunnels pierce the latter bulkhead and terminate in this package cement space. On top of this tunnel terminal, a strong loading platform of steel plates is installed directly under the hatch. The plans for possible future installation call for automatic cement packaging machinery in this space. Package cement will be carried also in the poop enclosure, and in the forward end of the bridge enclosure on the upper deck.

● Wing Tanks

An interesting feature of this reconstructed hull is the use of spaces left between the longitudinal bulk-

heads forming the sides of the cargo bins, and the ship sides. Between the second deck and the tank top, these were formed into watertight ballast tanks. Between the second deck and the upper deck they are dry compartments, and serve as pipe and cable channels. There are 12 of these water ballast tanks, six on each side of the ship (three forward and three aft). Cofferdams with drains fitted on the hold tank tops in way of each water ballast tanks. Two manholes with access ladders are fitted in each tank, and all the necessary filling, ventilating, overflow, and sounding pipes. Piping systems to these tanks connect with the ship's bilge pumps, and with the new circulating pumps in the auxiliary power room. The manifolds are so arranged that the tanks may be filled by gravity or by pumping; may be emptied or contents pumped from tank to tank port and starboard. By this arrangement not only can the vessel be easily and rapidly ballasted on empty return trips, but also kept in trim under any condition of cargo loading. A combined draft and deadweight system with indicators is fitted so that weight of cement in the ship can be quickly gauged.

● Deck Changes

Practically all of the main cargo hatches except the forward portion of No. 1 were removed, and the deck beams spliced and steel deck installed over the openings. New hatches were installed over the new machinery spaces, and access ladder trunks to the operator's booths and the tunnels. In the upper deck over each cargo bin four new 30-inch x 30-inch hatches were installed, 2 port and 2 starboard for ventilation and pressure relieving purposes.

All of the hull and machinery of S.S. Santacruzement was checked, many repairs and replacements were made, and the ship painted inside and out, so that in every way she is new—a thoroughly seaworthy job.

For greater assurance of safe navigation, a radio direction finder and a 500-watt vacuum tube intermediate frequency radio transmitting and receiving set were installed by the Radiomarine Corporation of America.

A type 480-T Fathometer was installed by the Submarine Cable Company.

Roll Control on an Atlantic Liner

*Eighteen Months of Experience with Gyroscopic
Stabilization on S.S. Conte di Savoia*



Cuts by courtesy of the Sperry Scope.
Wake of S.S. Conte di Savoia.

The Conte di Savoia has now been in operation for approximately eighteen months, and the gyro-stabilizers have been used upon practically every occasion where the peaks of free roll have exceeded 6 degrees on a side. Up to the end of April, 1934, the plant has stabilized a total of approximately 650 hours, which represents about 15½ per cent of the total time the ship has been in the Atlantic Ocean. This includes six months of last year when the weather was serenely calm, and there was no occasion for operating the stabilizer plant.

Rolling records taken on an automatic roll and pitch recorder show definitely that rolling can be practically eliminated when the gyros are in operation, and better functioning of the ship in all its departments is evident. One of the most noticeable improvements in the ship operation during stabilization is the reduction of yaw. Records taken on the course recorder of the Sperry gyro-compass equipment show greater accuracy in steering. This improvement, amounting at times to as much as 50 per cent, quite naturally results in an economy of fuel and permits the maintenance of a higher average speed.

The contractual requirements for the stabilizer plant, both in construction and operation, were very exacting and have been satisfactor-

ily met. Comparative trials taken in all conditions of sea showed an average residual roll of only 2.46 degrees each side of the mean vertical—a comparatively negligible amount—while the stabilizer was in operation.

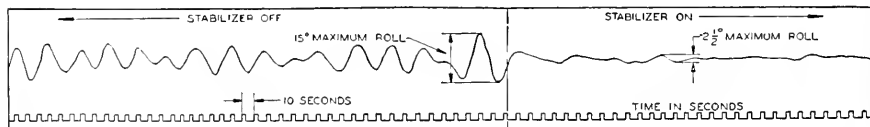
Mechanically and electrically the plant has functioned splendidly. A few internal oil leaks and a slight galling of the reduction unit gears were practically the only troubles experienced with the entire plant. This is truly a remarkable record for the first equipment of this size. The oil leaks were corrected by the introduction of suitable drain-off pipes. The gears offered a more serious problem, but great care has been taken to operate them with special correcting oils. The surfaces of the teeth are now so improved that there is absolutely no further wear, and they are taking on a normal appearance.

Some difficulty was encountered during heavy sea conditions in operating all three stabilizers in parallel at the full speed of 910 r.p.m. from two turbine generators. The difficulty was that momentary fluctuations of load, due to changes of bearing friction in any one of the gyros and to variations of the load taken by the precession generator, caused additional armature reaction of the motor-generator driving motors. This reaction so reduced the motor excitation that it caused the motor

to attempt to speed up and take more load. The effect would be cumulative until the torque was sufficient to pull the A-C circuit out of step. This tendency was corrected quite simply by judiciously shifting the motor brush gear so that the armature reaction would not have such an effect. Operation at 910 r.p.m. is now entirely satisfactory.

During the first few months of stabilization occasional heels occurring in synchronism with the residual roll were observed in certain directions and intensities of seas. These occurrences so augmented the roll that they made the ship heel to quite large angles—large enough, in fact, to slide dishes and loose articles off the tables. The passengers, of course, found these mishaps disagreeable and made some complaints. Although these singularly large heels did not recur frequently, they were sufficiently disturbing to make a thorough study of them necessary. The period of sea trials was accordingly extended to the end of March, 1934, so that the Sperry engineering personnel could work with the Italian Line in an endeavor to determine their cause and to remedy them.

Careful study has proven quite conclusively that these heels are the result of strong forces caused by rapid yawing action in a quatering sea. They occurred in a manner en-

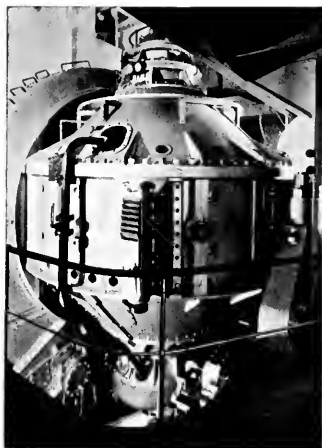


Roll record with and without gyroscopic stabilizer.

tirely foreign to the ordinarily accepted theory of rolling. The foremost naval architects in this country tell us that this is the first recognition and study of the phenomenon. It has, of course, been present in high speed ships, but the heel is usually so small as to be indistinguishable from the normal rolling increment of the ship. Furthermore, since up to now no large liners have been stabilized, there has been no way to distinguish between roll, due to wave action, and heel, due to yaw action.

It was therefore necessary to conduct many trials in order to determine the cause of these abnormal heels. In the course of the trials the characteristics of several other trans-Atlantic liners were observed. From these investigations it may be concluded that the primary cause of occasional heels has been absolutely determined, and it is probable that the findings may have some slight influence on future ship design. The result of these studies will be published in the near future.

When the primary cause of the disturbances had been determined, it was necessary to develop procedures of ship operation by which the extent of the heels could be reduced. If the magnitude and rate of yaw could be reduced, conditions would be bettered considerably. Consequently, the majority of procedures which reduce these occasional heels deal almost entirely with the problems of steering. Although this does not attack the problem at the root of the difficulty, it goes a long way toward improving conditions by reducing the severity of these occasional heels.



One of the Conte di Savoia's three 220-ton Gyro-Stabilizers.

Happily, most of the proposed procedures for improving conditions are easy to perform, and on future voyages of the Conte di Savoia due account will be taken of them in her operation.

There is one point, however, it would be well to make perfectly clear. The average trans-Atlantic passenger believes that when he boards the Conte di Savoia his trip will be unmarred by any sea movement whatever. To him all movement, be it pitch, roll or heave, should be eliminated by the gyro-stabilizer. He sometimes becomes a problem because he very often expresses his dissatisfaction and disappointment in no uncertain terms. Often his complaints are unfounded

or are predicated on a very meager basis of fact.

In many cases the passenger is disappointed when the ship encounters head seas and begins to pitch. He does not realize that the stabilizers are designed to minimize rolling, or side-to-side motion, but not to reduce pitch or heave. In head seas, or those seas where the direction of wave travel is opposed to the direction of ship travel, the Conte di Savoia will not roll, and the stabilizers are consequently not put into operation. In such seas any ship will pitch considerably. There are no stabilizers of any type now developed that can reduce pitching motion.

It is interesting to note that the Conte di Savoia holds several records for passenger lists. During the year 1933 she carried more passengers than any other ship and brought into New York the largest number on a single trip. She also has the record for the largest passenger list leaving New York on a single trip. Certainly some of this outstanding popularity may be credited to the Sperry gyro-stabilizer.

A New Technique in Surface Protection

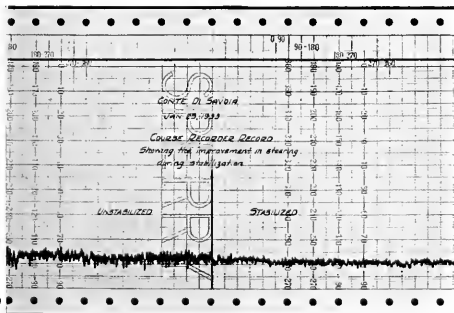
In all types of structure and in most materials, the protection of surfaces has seen many recent advances. The problem of protection is a two-fold one. Abrasion is the primary problem in some surfaces — corrosion in others — often the two must be met on one surface.

The following report deals principally with corrosion due to moisture, air-carried chemicals and salt or polluted water under the ordinary circumstances of use.

How does corrosion of the surface of wood, steel, cloth and similar materials take place? Everyone is familiar with at least the evidences of disintegration in surfaces — especially of surfaces coated with normal paints, varnishes and lacquers.

Blistering, cracking, chipping, etc. occur within relatively short periods of exposure. The cause is usually the change taking place in the surface of the material under the coating. In short, the coating itself does not remain impervious nor does it,

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..... The Beachcomber's Loot



Some Marvelous Sea Lore Gathered Where Found, Without Regard to Authority. Only the Ink and Paper were Ours and Those are Now Yours. Quien Sabe?

For some time past the editor has gathered from many sources rather interesting sea haps. Some of these come from contemporaries, some from personal correspondence, some possibly from imagination. We propose to publish them without credit to any of these sources. We welcome any corrections or discussions and will be glad to publish such but not at space rates. Nix. We can prove ourselves wrong easier than we can dig up five simoleons. Are you credulous or incredulous? Who cares!

Mother of the Clippers. At the Kennard and Williamson yard, Baltimore, in 1833, there was built the first ship-rigged vessel, whose hull lines approximated those of the brigs and schooners then known throughout the shipping world as the Baltimore clippers. This vessel, christened Aun McKim, was the pattern for a long and honorable line of clipper ships that made history in the cargo carrying trade for half a century.

Chief characteristics of Aun McKim were:

| | |
|----------------------------------|-------------------|
| Length on water line..... | 143 feet |
| Beam | 27 feet, 6 inches |
| Depth of hold amidships, 14 feet | |
| Tonnage, old measurement | |
| ..... | 494 tons |
| Draft forward | 11 feet |
| Draft aft | 17 feet |

Accurate records of her early voyages are not obtainable, but she had the reputation in the late thirties of being the fastest ship afloat. In 1849 she made San Francisco from Valparaiso in 51 days, and in 1850 from San Francisco to Valparaiso in 47 days—both very good runs.

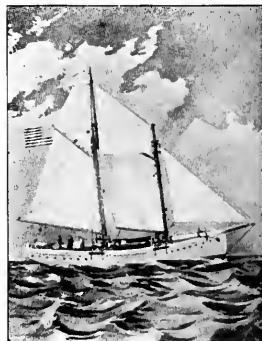
More Sailing Records: The extreme clipper ship, Flying Scud, launched from the yard of Metcalf and Norris, Damariscotta, Maine, on November 2, 1853, had a great turn for speed under favorable conditions. From November 24 to December 20, 1854, in running her easting down on approximately 44 degrees south latitude, she made 4620 nautical miles in 16 consecutive days, or an average of 288 nautical miles a day—12 knots average speed. In Howe and Matthews' "American Clipper Ships" it is stated that on November 6, 1854, during the same voyage, "she ran 449 miles" on that day.

One wonders if this is a misprint, or if it beats the Lightning's record of 436 miles made on her maiden voyage across the North Atlantic from Boston to Liverpool.

For sustained speed, Lightning has a run of 3722 miles in 10 days, and another of 2188 miles in 7 days.

The speed record that appeals to us most of all is that of the Great Republic. She left New York for California on December 7, 1856, with

5000 tons of mixed cargo aboard. On the fifth day out she made 413 nautical miles, 360 of these being made in 19 hours, an average of practically 19 knots. On this voyage, she crossed the Line in 15 days, 18 hours, from Sandy Hook, the fastest time on record. Too bad this great ship—the largest wooden clipper ever built—did not have a chance to show what she could do with her original rig.



Travel on American Ships. For the past fifteen years the publicity department of the United States Shipping Board has been carrying on an intensive campaign to educate the great American people in the advisability of traveling overseas under the American flag. "Keep your American dollars at home" — "Patronize the ships your dollars have built".

One interesting effect of this propaganda was brought to light on a recent arrival at New York of the S.S. Leviathan from Cherbourg and

Southampton. Seven stowaways were aboard, all were American and all declared they had selected the great liner for "patriotic" reasons—they wished to travel under the American flag.

One of the seven had made the round trip, the other six had boarded the ship at her European ports. All seven were put to work in the galley and were allowed to walk ashore at New York.



Anomalous Trichromats. A recent British report on "Color Vision Requirements in the Royal Navy" by a committee of the Medical Research Council estimates at least 10 per cent of males generally have imperfect color sense. A definite recent survey of 30,000 naval ratings showed that 6 per cent of these were imperfect in their vision with regard to color choice, although they had been passed by the ordinary red-green test.

The theory of color segregation by the eye is that there are three sets of nerves in the retina, one getting the sensation of red, one of green, the other of blue. A normal healthy eye controls these nerves so that by mixing sensations the eye gets all the shades and colors. White light stimulates all three sets, yellow light the correct proportions of sensitiveness to red and to green light and so on, right through the spectrum.

A person possessing such normal vision is rated a "trichromat." If one set of nerves is ineffective or missing he is rated a "dichromat."

The segregation of dichromats is a comparatively simple matter by simple tests. Usually they are very definitely either red-blind, or green-blind. But the problem as it relates itself to safe navigation afloat or ashore is complicated by the existence of a large class between the dichromats and the trichromats. The anomalous trichromats have all three sets of nerves but one or two or all of them are imperfect in their function, so that they mix color sensations erroneously.

Often this imperfection may cause trouble at sea or ashore, and the Medical Research Committee is recommending full spectroscopic examination for color discernment.

A Tall Fish Yarn. The British sailing ship *Crusader* plied between England and New Zealand in the decades between 1870 and 1890. During her outbound passage in 1874 with a total complement crew and passengers of more than 400 persons it is related that she sprang a bad leak crossing the Bay of Biscay, five days out from the British port. The ship's pumps could not cope with the leak and the captain had almost given up hope when suddenly the pumps began to gain on the leak, and from then on to the end of the voyage, the leak was only a trickle which was easily taken care of by the pumps.

On arriving at New Zealand, she went into Port Chalmers Dock for overhaul and a hole was found in her bottom with a large fish wedged tightly therein.

A Towboat Mystery. In 1914 the British sidewheel towboat, *Porpoise*, was purchased by the Nigerian government, and taken down the West African coast to Lagos where she operated for about 18 months. She was requisitioned by the Allied forces late in 1915 and commissioned for service in Duala on the Cameroons. Prior to delivery under that commission she was extensively overhauled and put in first class shape.

In January 1916, with a crew of two Europeans and eight natives, she left Lagos for Bonny, to be delivered to the French authorities there for war service. The distance



is 300 miles, the course is nowhere more than twenty-five miles off the shoreline, and that only for a short distance, for two-thirds of the entire distance the course follows the seven fathom line.

After clearing Lagos breakwater, the *Porpoise* was never seen or heard from. The weather was perfect, the placid waters of Benim Bight were untroubled by even the suspicion of a breeze, but the *Porpoise* and her crew disappeared completely, and although thorough search was made, no smallest particle of her wreckage has even been found. For the entire 300 miles, the beach on this coast is sandy and flat, and the ocean current sets continuously into the Bight, but no wreckage from the *Porpoise* has been washed up.

Commerce Rampant

"The streaming lanes of commerce surge and sway.

Daring our boats to breast them and explore.

Put forth the trading vessel! Seize the day!

Ho! race the engines! Seek the farthest shore!

"Put forth to China, Africa and Greece. Up! weigh for Argentina and the Horn.

Set all your ships to seek the Golden Fleece,

And let their crews go singing down the morn."

American Merchant Marine

(Continued from Page 297)

to capture new markets and augment services in old trades. This is accomplished by affording shipbuilding bounties, remittance on tax, or direct service subsidy.

7. Unscrupulous rate cutting by foreign owners to drive the American flag off the seven seas.

8. Uncertainty as to mail contract, or other subvention method, remuneration to be paid American owners in the future.

9. Tariff revisions and resultant loss in trade.

All of these items are well known to our lawmaking bodies in Washington, but possibly some of the competitive features are grossly underestimated.

Corrective measures have been set up by law to meet these exigencies. These measures should be vigorously enforced to their fullest extent.

We have a definite program set up by law and should set our aim in accordance with this program. It is to furnish and operate an adequate merchant marine sufficient in size to carry the greater part of our foreign commerce. It is recognized that such merchant marine is a powerful defensive adjunct to the American navy.

We are not carrying the greater part of our foreign commerce. We do not have an adequate merchant marine. We are facing a challenge. Failing to take cognizance of this challenge will eventually drive the American merchant marine off the high seas. History would repeat itself. Meeting the challenge will permit us to send our goods and our institutions with our own flag flying proudly in the breeze of the seven seas.

American owners must have the initial cost of building ships removed as a handicap by having shipbuilders subsidized, or building loans, as now provided by law, furnished at low interest and an outright subsidy guaranteed for the life of the vessel while in the service for which it is built. Further, cognizance should be given to the specific trade route and its attending subsidy needs. Each route should be studied

and adequate support given. A hard and fast subsidy for all routes is impractical.

American owners can operate efficiently. They know what tonnage is needed for the trade. They have the experience. Let us not waste the opportunity. We have the policy—let us follow it. We have the machinery—let us use it. Let us have an adequate American merchant marine today and forever.

Agriculture and the Merchant Marine

(Continued from Page 291)

products trade is carried under "foreign flags other than British." This is one of the most significant trends in world shipping since the late world war.

At the present time, the merchant marine of the United States is second only to that of Great Britain. Japan is in third place, followed closely by several of the European powers—Germany, France, Italy, Sweden, Norway.

The great colonization developments of the European nations and of Japan, and the great internal developments in South America, are causing tremendous dislocations in trade routes, and the products from these developments are encroaching on the markets for American agricultural products. We are no longer in a position to say to Europe, here is our agricultural surplus; come over and buy it. We simply have to load up our own ships with our most attractive products and go out and sell them to the world on a very keen competitive basis.

Practically all of the great colonizing nations have subsidized merchant vessels largely with the idea of capturing world markets for their agricultural products, and we are in a universal competition for international trade. Whether we like it or not, being in, we must play the game in the good old American way.

Compared with some of the others we have, up to now, been rather weak in our efforts. We need, both for trade competition and as naval auxiliaries, a fleet of fast modern cargo ships, comparable with the ships Europe and Japan have been building during the past five years. To build such vessels we need a strengthening of the Shipbuilding Loan Fund; to operate them we need a government subsidy and popular support; and to man them we need well-trained American navigators, engineers, and seamen who will all be salesmen of American ideals and American products.

ERRATA . . .

The July issue of Pacific Marine Review, on page 208, carried a reproduction of a chart showing growth of American Merchant Marine of 100 years. This chart in error was credited to the Shipping Board Bureau of the U. S. Department of Commerce. It should have been credited to the Bureau of Navigation and Steamboat Inspection of the United States Department of Commerce, and was prepared under the supervision of Harry E. Reiseberg, Chief of the Tonnage Division of that Bureau.

THE HOUSE AND THE SEA, by Johan Bojer. 300 pages, bound in burnt orange with black stampings. Published by D. Appleton-Century Company, New York. Price \$2.50.

Written in a style of almost primitive simplicity, this book tells the story of two men who meet as penniless law students. One is handsome, energetic, ambitious, often unscrupulous; the other awkward, timid, tenacious, and deeply honest. Both marry, and with the coming of fairly large families feel the pinch of poverty. One adjusts himself as best he can to his circumstances, laboring under a burden of debt. The other seizes an opportunity to make himself many times a millionaire through the exigencies of the World War. They are very human men, with very human families, and the simplicity of the style and the story tend to bring out this human quality more starkly than would a more elaborate treatment.



Marine Insurance

... A Critique of American Maritime Collision Law

By Lieutenant Raymond F. Farwell, U. S. N. R.

Assistant Professor Transportation, University of Washington

(Continued from Page 282, September)

We may now consider a possible third factor in the large proportion of collisions due to legal fault, namely, inherent defects in the rules themselves. Are the rules, or any of them, inexplicit, ambiguous, confusing, or conflicting? Is the navigator allowed too much discretion under them, or conversely, is his action for the safety of his vessel too greatly restricted? Are there needless discrepancies in the different sets of rules that complicate intelligent obedience of them in practice? These are some of the questions which a searching analysis should seek to answer. And while it is obviously beyond the scope of this article to make such an analysis, there are certain illuminating facts which even a brief examination will reveal.

It will be found that our American fondness for lawmaking is as apparent in the field of collision prevention as in many other branches of the law, for we navigate under five different sets of rules of the road, and can scarcely proceed from one American port to another without being subject to three. The present international rules were drawn up by a conference of representatives of the maritime nations of the world at Washington, D.C., in 1889, and subsequently adopted by the respective nations concerned. They are, therefore, the law of the sea to all

vessels on the high seas, or outside the limits of specified inland waters. The rules for the Great Lakes and the St. Lawrence River as far east as Montreal were passed by Congress in 1895, and apply to all vessels in the waters indicated. The rules for the Red River of the North, and rivers emptying into the Gulf of Mexico, and their tributaries, were passed by Congress in 1897, as were the inland rules, which apply to all vessels in such of the inland waters of the United States as are not covered by the two preceding sets of rules. The fifth body of collision law in the United States is known as the pilot rules, and under an authorizing section of the inland rules, with which they have co-extensive jurisdiction, they may be made or amended from time to time as desired by the supervising steamboat inspectors, subject only to the legal restriction that they must not conflict with the inland rules.

● Sound But Obsolete

It would be presumptuous for any individual to theorize as to the soundness of the international rules. The men who drafted them after most comprehensive study and debate were eminently practical ship operators, admiralty lawyers, and high naval officers, the ablest of their time; they did their work wisely and well; and the remarkable

body of rules which they formulated has thus far stood the test of time the world over. One cannot read the record of the proceedings of the international convention without being impressed again and again by the delegates' remarkable grasp of the problems involved, their conscientious attention to detail, and the collective brilliance of their final achievement. There is one factor, however, over which they had no control, and that is the passage of time. When the international rules were passed, a 3,000-ton ship was a very large vessel, and no steamship had yet made a speed of 18 knots. The world's record for the longest day's run was still held by a sailing ship. Today we have commercial steamships of 30,000 tons and upwards making nearly 30 knots, and naval vessels with considerably higher speeds. At the present rate of progress it is becoming common for vessels to approach each other at a combined speed of from 40 to 60 miles an hour, or more than twice the speed of 40 years ago. The implication is that if the minimum visibility of running lights prescribed in 1890, and the corresponding minimum audibility of whistle signals as construed accordingly by the courts, were proper, then those minima should certainly be increased now in order that the navigator

may still have the same time of preparation for meeting a vessel after discovering her.

The inland rules were formulated largely by the same representative shipping men who served as the American delegates to the international convention of 1889. It may be assumed that the differences between the international rules and the inland rules were agreed upon by them either because of the weight of local custom or because they felt that the changes were intrinsic improvements. We must recognize that while the inland rules conform in a general way to the provisions of the international rules, they differ from them, nevertheless, in several important respects. The same may be said of the pilot rules, which pattern after and serve chiefly to amplify the inland rules, but which provide certain additional lights and sound signals. It is the existence of these differences which, in the opinion of the writer, constitutes the chief weakness in our present system of collision law.

Not all of the variations in the different sets of rules are important. It probably does not matter that the fog signals must be given at least every two minutes under international rules and at least every minute under inland and pilot rules, despite the implied absurdity that vessels are closer together when approaching collision in inland waters than outside these waters. It is a matter of indifference whether an overtaking vessel discovers the vessel ahead by means of a fixed or temporary stern light, as provided for ocean steamers under international rules, or by means of the compulsory after-range light visible all around the horizon, as provided for inland steamers under inland rules. But when the navigator who obeys the regulations is compelled to recognize a fundamental difference in the meaning of sound signals, and to use one set of such signals under international rules and a different set under inland and pilot rules, then serious confusion is bound to result. And it must be remembered that, ignoring the rules for the Great Lakes and for western rivers in our discussion, one cannot steam from New York to Philadelphia or from San

Diego to San Pedro without invoking, at different stages of the voyage, the international rules and the inland and pilot rules.

● Analysis of Variations

Perhaps there is no better way to emphasize the importance of these differences than to analyze the action required by two vessels which meet in the crossing situation, first in inland waters, and second outside inland waters. Incidentally, about 40 per cent of the faulty collisions occur in this situation. In the first case, consider vessel A to have the right of way over vessel B, which she is approaching at right angles at a speed which the bearings show involves risk of collision. Under inland and pilot rules, what must she do? Under Art. 21, inland rules, and pilot rule VII, she is bound to hold her course and speed. Under the section of the pilot rules on signals she is authorized to blow one blast, and under a ruling of the federal court, the authority becomes a mandate. Vessel B, under Articles 19, 22, and 23, must keep out of the way, must avoid if possible crossing ahead, and shall if necessary slacken her speed or stop or reverse. Pilot rule VII says she shall keep out of the way by directing her course to starboard so as to cross the stern of the other vessel, or if necessary to do so, slacken her speed or stop or reverse. Under pilot rule III she must answer vessel A's one-blast signal with a similar blast. But supposing she does not answer it, and gives no other evidence of yielding the right of way to vessel A. Under Art. 21 vessel A must continue to hold course and speed; under Art. 18, rule III, and pilot rule I, she must give the danger signal (four or more short blasts); under Art. 12 she may show a flare-up light or use any detonating signal; and finally, if vessel B persists to a point where it is no longer possible for her to avoid vessel A by her own action alone, vessel A must invoke Art. 27. It is not lawful for vessel A to stop and back before that time, notwithstanding the apparent injunction in the closing paragraph of pilot rule VII, which has been found invalid by the federal court. Article 27 provides:

"In obeying and construing these rules due regard shall be had to all

dangers of navigation and collision, and to any special circumstances which may render a departure from the above rules necessary in order to avoid immediate danger."

In this case, the courts have construed for vessel A substantially the action indicated by the footnote of Art. 21, international rules:

"When in consequence of thick weather or other causes, such vessel finds herself so close that collision cannot be avoided by the action of the giving-way vessel alone, she also shall take such action as will best aid to avert collision."

In other words, any action, right or wrong, which vessel A takes in good faith to avert the collision at this point except maintaining course and speed right through vessel B will be upheld by the courts. If such action is to reverse her engines, then she must indicate it by three short blasts of the whistle as provided in Art. 28 and the signal section of the pilot rules.

Now let us consider the action of the two vessels in exactly the same situation but outside the limits of inland waters, and therefore subject to the international rules. So far as right of way is concerned, the same rules apply; Art. 21, international rules, requires vessel A to hold course and speed, Arts. 19, 22, and 23 require vessel B to keep out of the way, to avoid crossing ahead of vessel A, and if necessary to slacken her speed or stop or reverse. The important differences are in the prescribed sound signals. Vessel A cannot blow one blast because under Art. 28, international rules, one blast signifies intention to direct course to the right. Vessel B, on the other hand, must blow one blast, under Art. 28, if she changes course to starboard to go under vessel A's stern; but the latter cannot answer the signal for the reason already given. If vessel B holds on, and gives no indication of yielding as provided in the rules, the only way vessel A can attract her attention is by the flare-up light or the detonating signal provided in Art. 12. There is no other danger signal under the international rules. Vessel A must maintain her course and speed until in the jaws of impending collision; she must then take appropriate action to

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avert collision under the footnote of Art. 21 already quoted, with the additional complication that under Art. 28, international rules, she must indicate with the proper whistle signal not only a reversal of her engines, but any alteration of her course to starboard or to port.

It is evident, therefore, that as the rules now stand, at least two distinct whistle signals, the one-blast signal and the danger signal, are required of vessel A under certain circumstances in inland waters, and the omission of either constitutes legal fault; while the use of either of these signals by vessel A, once she has crossed an imaginary line bearing so many degrees from such and such a point and emerged from inland waters, likewise constitutes legal fault if a collision follows. The relative merit of the two kinds of signals in the crossing situation is not nearly so important, in the writer's opinion, as the fact that there are two kinds of signals, and the navigator, to avoid liability in the crucial situation of an impending collision, must act in accordance with well-considered geography instead of instinct. It is surely significant that if the West Hartland collision had occurred fifteen miles to the westward off New Dungeness instead of off Point Wilson, the two major points of liability affecting the principal vessels—failure to use the one-blast signal in a timely manner and failure to use the danger signal—would not have applied at all. This is only less significant than the fact that if the West Hartland had acted under the pilot rules and given the warning signal of one

blast soon after sighting the Governor, there would probably have been no collision.

● Uniformity Needed

There is much to be said in favor of complete uniformity in the rules of the road, even at the sacrifice of excellent advantages in one set of rules or another. Most navigators will concede that the international rules include certain features which ought to be in the inland rules, like the two long blast signal to indicate a steamer under way without way in fog, or the two red lights to show that a vessel is broken down; and conversely, the compulsory range lights and the danger signal of the inland rules would make excellent provisions for the international rules; but surely no single rule is worth keeping at the cost of confusing the nonlegal mind of every navigator with two or three sets of collision rules, and making it necessary, in some cases, for him to take time out and cut in his vessel, in order to determine which rules govern. The writer is one occasional navigator who would be eternally grateful if the initial step were taken immediately by repealing all rules except the international rules, and for the time being those rules were made to apply to everything that floats; then with the calling of an international convention like that of 1889, the nations of the world might sit down together, make any desired changes or additions, and put out a modern edition of international rules that would serve shipping another 50 years. Only this time there should be a gentleman's agreement abolish-

ing all existing special rules, and providing that any nation in future perpetrating on the unsuspecting navigator inland rules of its own should be excommunicated, and its ships barred from the high seas. Unless and until some such action is taken, the professional navigator can protect himself only by being absolutely familiar with every detail of the international, the inland, and the pilot rules, with special emphasis on their points of difference and on interpretative court decisions and, for good measure, by an additional course of sprouts whenever he has occasion to enter the Great Lakes, soon to be opened to ocean shipping, and the Mississippi River. Which, after all, clinches the main argument of this article: that in the field of collision law, a little knowledge is a dangerous thing.

It is not contended that faulty collisions will cease when we have eliminated defiance or ignorance of the rules by licensed and commissioned navigators, and when we have modernized and unified and simplified the rules themselves. It will never be possible to legislate away all human frailty, and there will still be collisions due to errors in judgment. We shall always have with us the unlicensed fisherman or pleasure-boat owner who answers our crossing whistle with one blast, and then keeps blithely on across our bow under the impression that a whistle signal means, "Hello, how are you?" Until the change suggested is made international in scope, there will continue to be misunderstandings between American vessels and foreign vessels without pilots in our in-

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land waters, for the skippers of the latter are likely to know even less than we do about inland and pilot rules, and to assume that they are still under international rules. In the naval service, mishaps in maneuvers in close formation cannot always be prevented by the rules. It is not contended, either, that avoidance of legal liability, rather than prevention of collision, should be the prime desideratum of every navigator. But it is contended, with some

degree of reason, that when our courts, over a period of 40 years, find approximately a 97 per cent correlation between law violation and physical collision, then any course of action which results in a better understanding and a consequent wider observance of the law is likely to prove an effective method of reducing the number of collisions.

(U. S. Coast and Geodetic Survey
Bulletin of Association of Field
Engineers.)

Marine Fraternity

"With steel and hooks and chemicals
and ore

Let the ships sail. The ocean roads
are free.

Put forth to Rio and to Singapore,
And all the ports that fringe the
swinging sea!

"In this new age of manly sentiments
In seeking the ends beyond the selfish
good,

They serve the most who waken conti-
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And teach the world a braver brother-
hood."

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INSURANCE

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Marine Insurance Notes

A. W. Follansbee, Jr., retired marine secretary of the Fireman's Fund Insurance Company, passed away at his home in San Francisco on the morning of September 7. He had retired from active service on February 2, 1932, after forty years continuous connection with Fireman's Fund. He was a native son, born in San Francisco in 1874.

Follansbee had a heritage from "sea-farin" ancestors. His grandfather, Alonzo W. Follansbee, was master of the barque, Greenfield, which in 1855 carried the first consignment of grain from California to Liverpool. He had a host of friends and acquaintances among the marine fraternity who will hear of his passing with deep regret.

Wrecked or Scrapped. In the year 1933, according to Lloyd's Register, there were lost or broken up, 930 steamers and motorships, with a gross tonnage of 2,733,458 and 99 sailing vessels with a gross tonnage of 57,702. Of these totals, 88.3 per cent of the power-driven, and 38.3 per cent of the sail-driven vessels were broken up for scrap under various scrapping programs.

Better Pier Protection. A recent report of the New York Board of Fire Underwriters sharply calls at-

tention to the need for "better construction, protection, and control" of piers in New York Harbor, and advises for this type of construction a regulatory ordinance similar to that governing the building of land structures.

New Admiralty Office. Chalmers C. Graham has opened his own offices for admiralty practice in San Francisco. The former firm of Lillick, Olson, and Graham, will now conduct business under the name Lillick, Olson, Levy and Geary in San Francisco, and as Young, Lillick, Olson, and Kelly in Los Angeles.

History of Insurance. The National Association of Insurance Agents in convention at Grand Rapids, Michigan, were addressed September 17 by Hendon Chubb, on "The History and Development of Marine and Inland Marine Insurance."

New Technique in Surface Protection

(Continued from Page 309)

as seen through the microscope, even cover the entire surface. Moisture and other destructive elements can quickly creep in.

Studying a surface magnified 75 diameters reveals the reason for this common phenomenon. Practically every surface, even of polished steel, has many microscopic pits or pores or fissures. Practically every commercial coating has a marked viscosity or surface tension or "stiffness". Assume then that such a coating is applied to such a surface. The coating is sufficiently fluid to flow into all large pits — but, as the microscope reveals, it is stiff enough to bridge over the mouths of the smaller ones. So, when the coating sets or

dries, a diaphragm is formed — a more or less porous diaphragm. Then the expansion and contraction of the presumably protected surface of the material, or the application of outside pressures, causes the porous diaphragm to let corrosive air or fluid flow through upon the unprotected inner surfaces of the pit.

Since the visible by-products of corrosion usually occupy many times the space of the original material, this pit becomes filled up and the diaphragm is cracked or forced off. The process of destruction then multiplies—and the surface is either destroyed, or as in the case of certain materials, the destruction finally becomes "self limited".

So it is evident that paints, varnishes and lacquers must fall short of the ideal of protection from corrosion.

Therefore the chemists of the Protection Products Company devoted themselves to finding a vehicle for pigments which would penetrate and seal the walls of the microscopic pits in the surfaces of materials, the fibres of textiles and in other applications.

Finally they developed a fluid essentially different in chemical character from paints, varnishes and lacquers. It was named "Protection".

The "creep" or penetrating power of this unusual vehicle is so much greater that the length of life of the treated surface is very greatly extended. Moisture is "shunted" away by it. The treated surface loses its power to attract or absorb destructive elements.

The firm has started a new series of laboratory and field tests to establish more definitely the probable length of life of this "Protection" on common surfaces under specific conditions. Reports will be released from time to time.

The plant in Kalamazoo, Michigan, is now in full production. "Protection" is already available in the following colors: clear, aluminum, black, light tan, khaki, and brown. The automotive, hardware and mill supply trades are reported to be stocking up.

*Pacific
Marine Review*

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American Shipbuilding

FOUR NAVY SHIPS TO BUILD ON WEST COAST

Contracts for the construction of twenty-four naval vessels were awarded on August 22 by Acting Secretary of the Navy Henry L. Roosevelt. Eleven of these will be constructed by private shipbuilding companies on the east coast, and 13 in navy yards throughout the country. Of the latter, four vessels will be built on the west coast—two, light destroyers, at the Puget Sound Navy Yard, Bremerton, Washington; and two, one light destroyer and one submarine, at Mare Island Navy Yard, California.

Appropriations for four of the twenty-four vessels are carried in the annual appropriation bill, while funds for the other twenty will be provided for in a portion of the last public works appropriation. The total cost by vessels to be constructed in private yards will be, according to estimates submitted on August 15,

\$53,106,000.00. Awards were made as follows:

Newport News Shipbuilding & Dry Dock Company, Newport News, Va.—one light cruiser, 10,000 tons \$11,650,000.

New York Shipbuilding Corporation, Camden, N. J.—one light cruiser, 10,000 tons—\$11,975,000.

Federal Shipbuilding & Drydock Co., Kearny, N. J.—two heavy destroyers, 1,850 tons—\$3,946,000 each.

Bethlehem Shipbuilding Corp., Ltd., Quincy, Mass.—two light destroyers, 1,500 tons—\$3,784,000 each.

United Shipbuilding & Dry Dock Company, New York — two light destroyers, 1,500 tons—\$3,430,000 each.

Electric Boat Company, Groton, Conn.—three submarines, approximately 1300 tons—\$2,387,000 each.

New York Navy Yard — one light cruiser.

Philadelphia Navy Yard—one heavy cruiser.

Portsmouth, N. H., Navy Yard—two

submarines.

Boston, Mass., Navy Yard—two light destroyers.

Puget Sound Navy Yard, Wash. — two light destroyers.

Norfolk, Va., Navy Yard — three light destroyers.

Mare Island, Calif., Navy Yard—one light destroyer and one submarine.

DRAVO WILL BUILD LIGHTHOUSE TENDER

Contract has been awarded the Dravo Contracting Company, Pittsburgh, Pa., by the Department of Commerce, Bureau of Lighthouses, Washington, D.C., for the construction of a lighthouse tender for the Eighth Lighthouse District, New Orleans, La. The vessel, to be called the Jasmine, will cost \$114,850.00. She will be a twin-screw steel Diesel propelled tender; length overall, molded, 90 feet; beam, molded, 23 feet; and depth at side, 8 feet, 3 inches.

(Continued on Page 321)



Activity in Moore Drydock Yard, Oakland, Calif., where Battle Cruiser Missoula (CA13) is being scrapped. Built by Newport News Shipbuilding & Dry Dock Co., Newport News, Va., in 1908, she was put out of commission in 1921. She was 504 feet, 5 inches long, with 15,981 tons displacement, and 22½ knots speed.

Progress of Construction

The following Report Covers the Shipbuilding Work in Progress at the Leading Shipyards of the United States as of September 1, 1934

Pacific Coast

BETHLEHEM SHIPBUILDING CORPORATION, LTD. (Union Plant) San Francisco

DRYDOCK, PAINT, MISCELLANEOUS: S.S. El Segundo, S.S. Pres. Coolidge, S.S. Felix Taussig, S.S. Sage Brush, S.S. Pennmar, S.S. Brookdale, M.S. Lio, S.S. President Wilson, S.S. Dorothy Alexander, S.S. Bertie M. Hanlon, S.S. Maul, S.S. Admiral Cole, S.S. Fort Wayne, S.S. Paul Shoup, S.S. W. S. Miller, S.S. Maunawili, S.S. Capt. A. F. Lucas, S.S. Golden Kauri, S.S. Malolo, S.S. Losmar, S.S. Condor, S.S. President Harrison, S.S. President Pierce, S.S. Merle H. Whittier, S.S. Capac, Tug Arabs, S.S. Santa Lucia, S.S. Nosa Chief, M.B. Richlube, S.S. City of Los Angeles, S.S. Talamanca, S.S. R. J. Hanna, S.S. Stuart Dollar, S.S. President Taft, S.S. President Hoover, S.S. Chiriqui, M.S. Chichibu Maru, S.S. Manukai.

LAKE UNION DRYDOCK & MACHINE WORKS Seattle, Wash.

NEW CONSTRUCTION: Hull No. 102, Atlanta, U.S. Coast Guard patrol boat; keel laid March 23, 1934; launched June 11, 1934; estimated delivery, Sept. 20, 1934.

Hull No. 103, Ariadne, U.S. Coast Guard patrol boat; keel laid March 23, 1934; launched July 1, 1934; estimated delivery, October, 1934.

Hull No. 104, Cyane, U.S. Coast Guard patrol boat; keel laid June 12, 1934; estimated launching August 25, 1934; estimated delivery Nov. 1, 1934.

THE MOORE DRYDOCK CO. Oakland, Calif.

DRYDOCK, PAINT, MISCELLANEOUS: Democracy, California, Esther Johnson, Willkeno, West Notus, Dorothy Whitmore, Santiam, San Diego, Grays Harbor, Cadaretta, Kansan, Marsodak, Arizona, Willzipo, Kadiak, Zaca, Kentuckian, Hildago, Minnesota.

THE PUGET SOUND NAVY YARD Bremerton, Washington

NEW CONSTRUCTION: U.S.S. Worden (Destroyer No. 352), keel laid Dec. 29, 1932; LBP, 334'; beam 34'2½"; loaded draft, 10'10"; geared turbine engines; Yarrow type water-tube boilers.

U.S.S. Cushing (Destroyer No. 376); LBP, 334'; beam, 35'¾"; loaded draft, 10'10"; geared turbine engines; express type boilers; keel laid August 15, 1934.

U.S.S. Perkins (Destroyer No. 377); LBP 334'; beam, 35'¾"; loaded draft,

10'10"; geared turbine engines; express type boilers; building under provisions of National Industrial Recovery Act.

Two 1500-ton destroyers for U. S. Navy; contract received August 22, 1934.

DRYDOCK, PAINT, MISCELLANEOUS: Nevada, Pennsylvania, Maryland, Haida, Partridge, Mahopac, Tatnuck, Challenge, Wando.

Care and Preservation (out of Commission): Aroostook, Jason, Kearsarge, Patoka, Pawtucket, Prometheus, Pyro, AS-8 (ex-Savannah).

TODD SHIPYARD CORPORATION Seattle, Wash.

S.S. Rappahannock, general alterations and repairs.

UNITED STATES NAVY YARD Mare Island, Calif.

NEW CONSTRUCTION: Smith, U.S. torpedo boat destroyer (DD378); 340 ft. long, 35 knots speed; standard displacement, 1500 tons, estimated completion date, Feb., 1936.

Preston, U. S. torpedo boat destroyer (DD-379); 340 ft. long; 35 knots speed; standard displacement, 1500 tons; estimated completion date, May, 1936.

Preparation of plans and purchase of material in progress. Practically all of the structural steel has been purchased and delivered. The lines have been faired in the mold loft, and preparation of molds and fabrication of steel are proceeding. Neither of the vessels has been laid down, nor have dates yet been set.

Atlantic, Lakes, Rivers

AMERICAN BRIDGE COMPANY Pittsburgh, Pa.

NEW CONSTRUCTION: Repairs to 20 barges for Carnegie Steel Co.; 14 completed.

BATH IRON WORKS Bath, Maine

NEW CONSTRUCTION: Hull No. 154, Dewey (DD 349), torpedo boat destroyer for U.S. Navy; keel laid Dec. 16, 1932; launched July 28, 1934; estimated delivery, September, 1934.

Hull No. 159, Drayton (DD 366), torpedo boat destroyer, U.S. Navy; keel laid, March 20, 1934; launching, no date set; estimated delivery November, 1935.

Hull No. 160, Lamson (DD 367), torpedo boat destroyer, for U.S. Navy; keel laid, March 20, 1934; launching, no dates set; estimated delivery, January, 1936.

BETHLEHEM SHIPBUILDING CORPORATION Fore River Plant, Quincy, Mass.

NEW CONSTRUCTION: Heavy Cruis-

er CA-39, Quincy, 10,000 tons. Estimated delivery January, 1936.

Heavy Cruiser CA44, Vincennes, 10,000 tons. Estimated delivery January, 1937. Keel laid January 2, 1934.

Four Torpedo Boat Destroyers; DD-360, Phelps, keel laid January 2, 1934; estimated delivery, December, 1935.

DD361, Clark, keel laid January 2, 1934; estimated delivery February, 1936.

DD362, Moffett, keel laid, January 2, 1934; estimated delivery April 1926.

DD363, Balch, estimated keel laying, April, 1934; estimated delivery, June, 1936.

CHARLESTON DRYDOCK CO. Charleston, S.C.

NEW CONSTRUCTION: Order for plans for sternwheeler river steamer for Krajewski-Pesant Mfg. Co. to be shipped knocked down to Venezuela, completed.

Contract for one 5,000-barrel all-welded steel tanker for Messrs. Thurber & Powers of Boston; estimated completion date, Dec. 1, 1934.

Seasonable repairs to Engineer Snagboat Waterse; also Lighthouse Tender Mangrove.

DEFOE BOAT AND MOTOR WORKS Bay City, Mich.

NEW CONSTRUCTION: U. S. Coast Guard Cutter No. 151, displacement tonnage 1000; keel laid, November 30, 1933; launched Aug. 2, 1934; estimated delivery, Sept. 1934.

U. S. Coast Guard Cutter No. 152, displacement tonnage 1000; geared turbine drive; B. & W. boilers; 1500 h.p.; keel laid Dec. 15, 1933; estimated launching Sept. 5, 1934; estimated delivery, Oct. 1934.

THE DIABLO CONTRACTING CO. Engineering Works Dept., Pittsburgh, Pa., and Wilmington, Del.

NEW CONSTRUCTION: Contract No. 872, Hull No. 997, one diesel sternwheeler towboat of 91 gross tons.

Contract No. 983, Hull No. 1151, one steel floating drydock, Bureau of Yards and Docks, Navy Dept., of 4220 gross tons.

Hull No. 1164, 750 h.p. twin screw diesel towboat for stock.

Hulls Nos. 1194 to 1201, eight flush deck S&G barges 130'x24'x6" for stock.

Hull No. 1202; Lighthouse Tender Jasmine, for U. S. Lighthouse Service; 187 gross tons.

This makes a total of 10 hulls under contract, with a total gross tonnage of 2034.

ELECTRIC BOAT CO.

Groton, Conn.

NEW CONSTRUCTION: Hull No. 19, fleet submarine, Shark, (SS174); L.B.P. 298'; beam, 25'; standard displacement, 1315 tons; keel laid, October 24, 1933; estimated launching, April, 1935.

Hull No. 20, Tarpon (SS175); L.B.P. 298'; beam, 25'; standard displacement, 1315 tons; keel laid, Dec. 22, 1933; estimated launching, February, 1935; possible delivery, November, 1935.

THE FEDERAL SHIPBUILDING AND DRYDOCK COMPANY

Kearny, N. J.

NEW CONSTRUCTION: Two destroyers, DD368 Flusser and DD369 Reid for the U. S. Navy, estimated completion dates—Flusser, Nov., 1935; Reid, February, 1936.

Two barges for undislosed owner; hulls Nos. 132, 133; L.B.P. 205'; beams, 39'; depths, 14 1/2'; 825 D.W. tons; keel laid April 13, 1934.

INGALLS IRON WORKS

Birmingham, Ala.

NEW CONSTRUCTION: Hulls Nos. 73 and 74, river pontoons; keels laid Nov. 1933; L.B.P. 140'; beam, 8'.

Hull No. 82, Oil Barge, keel laid May 8, 1934; L.B.P. 200'; beam 40'; loaded draft, 8'6"; launched Aug. 1, 1934.

MANTOWOC SHIPBUILDING CO.

Mantowoc, Wis.

NEW CONSTRUCTION: Three U.S. Coast Guard Patrol Boats, Hull Nos. 277 Dione; 278 Electra; and 279 Pandora; L.B.P. 165'; beam 25'3"; loaded draft, 8'6"; speed loaded, 18 knots; Diesel engines, 1200 S.H.P.; all three launched June 30, 1934.

Hull No. 280, Lighthouse tender, Tamarack, L.B.P. 111'8"; beam 29'; loaded draft, 7'; speed loaded 10 1/2 knots; diesel electric, 450 S.H.P. No dates set.

THE MARIETTA MANUFACTURING COMPANY

Point Pleasant, W. Va.

Three 165' Patrol Boats for U.S. Coast Guard, Washington, D. C., Nike, Nemesis, and Triton, 25'3" beam, 13' 2" depth; will draft approximately 7'; twin-screw type, propelled by two 650 horsepower Winton Diesel engines. Total displacement of each vessel approximately 300 tons; required speed 16 knots—now under construction; estimated delivery dates, Oct. 9, 1934; Oct. 29, 1934; and Nov. 18, 1934 respectively; Nike launched June 23, 1934; Nemesis launched, July 7, 1934. Triton to be launched during August.

Two 132'x35'x10' steel covered cargo barges of 850 tons capacity for stock account completed.

Two Side Wheel Self-Propelled 34' Pipe Line Dredges of the Dupstan Type. Total contract price \$1,016,500.00. Delivery in 180 and 210 days—Length, molded, 270'0"; length overall, 277' 1 1/2"; breadth, molded, 50'0"; breadth overall, 84'8 3/4"; depth, molded, 8'6"; depth midships, 9'3"; first keel laid May 2, 1934; second keel laid June 28, 1934.

One twin screw diesel driven towboat for U. S. Engineer's office, Vicksburg, Miss.; length molded 176'; breadth, 38'; depth 8'6"; two 650 H.P. diesel engines; two 75 and one 15 K.W. diesel driven generating sets; contract price \$314,750.00, delivery at Vicksburg, Miss., in six months.

MIDLAND BARGE COMPANY (Subsidiary of Treadwell Construction Company.)

Midland and Erie, Pa.

NEW CONSTRUCTION: Steel Barge 100'x24'x7'. Two steel launches, 31 ft. by 8 ft. 6 ins. by 2 ft. 6 ins. for U. S. Engineers, Memphis, Tenn. Four barges, 100'x26'x6'6" for stock.

NASHVILLE BRIDGE CO.,

Nashville, Tenn.

NEW CONSTRUCTION: Hull No. 286, Snag boat for U.S. Government, keel laid April 1, 1934; estimated launching, June 24, 1934; estimated delivery, November, 1934; L.B.P. 170'; beam 28'; loaded draft 4 1/2'; 600 I.H.P. engine; 2 boilers.

Hulls Nos. 287, 288, 289, three deck barges for stock, 100'x26'x6 1/2'; completed, July 7, 1934.

Hull No. 290, Derrick barge; keel laid May 25, 1934; launched June 25, 1934; L.B.P. 62'; beam 34'; loaded draft 5'; building for T.V.A.

Hulls Nos. 291, 292, 293, three deck barges; keels laid July 15, 1934; estimated launching Aug. 15, 1934; L.B.P. 123'; beam 29'; loaded draft 7 1/2'; for stock.

Hulls Nos. 294, 295, two deck barges; for stock; estimated keel laying, July 25, 1934; estimated launching, Sept. 1, 1934; L.B.P. 100'; beam 26'; loaded draft 6 1/2'.

Hull No. 296, towboat; keel laid July 3, 1934; estimated launching, Aug. 8, 1934; L.B.P. 50'; beam 12 1/2'; loaded draft 4 1/2'; building for T.V.A.

Hulls Nos. 297, 298, 299, three barges for stock; 100'x26'x6 1/2'; estimated launchings, October 1, 10 and 20 respectively.

Hull No. 300; barge for Davidson County; 60'x16'x3 1/2'; launched October 15, 1934.

NEWPORT NEWS SHIPBUILDING & DRYDOCK CO.

90 Broad Street, New York

NEW CONSTRUCTION: II 359 aircraft carrier CV5, Yorktown, for U. S. Navy; keel laid May 21, 1934; estimated delivery, October 3, 1934.

H360 aircraft carrier, CV6, Enterprise, for U.S. Navy; keel laid July 16, 1934; estimated delivery February 3, 1937.

H361, light cruiser for U.S. Navy; completion time 34 months after date of contract or formal award.

THE NEW YORK SHIPBUILDING COMPANY

Camden, N. J.

NEW CONSTRUCTION: Contract for four destroyers: Hull No. 408, Porter (DD356); Hull No. 409, Selfridge (DD-

357); Hull No. 410, McDougal (DD-358); Hull No. 411, Winslow (DD-359); of 1850 tons each; keels laid, Dec. 1933.

Two light cruisers: Hull No. 412, Savannah (CL42), Hull No. 413, Nashville (CL43), of 10,000 tons each for the U. S. Navy Department; estimated delivery dates are as follows: DD356, Porter, Dec., 1935; DD357, Selfridge, Feb., 1936; DD358, McDougal, Apr., 1936; DD359, Winslow, June, 1936; CL42, Savannah, Aug., 1936; CL43, Nashville, Dec. 1936.

Oil tanker, No. 414, and oil tanker No. 415, for Standard-Vacuum Transportation Company, 15,000 tons D.W. each; keels laid March 26, 1934; delivery early 1935.

THE PUSEY & JONES CORP.

Wilmington, Del.

NEW CONSTRUCTION: Nos. 56, Algonquin; 57, Comanche; and 58, Mohawk; crushing cutters, building for Treasury Department, U. S. Coast Guard Service; L.B.P. 150'; beams, 36'; loaded draft 13'; speed loaded, 15 miles per hour; turbine engines, 1500 S.H.P.; two watertube boilers, 325 pounds pressure, construction schedule; No. 56, keel laid, January 16, 1934; launched July 25, 1934; estimated delivery, September 29, 1934; No. 57, keel laid January 17, 1934; estimated launching, September 6, 1934; estimated delivery, November 2, 1934; No. 58, keel laid, February 1, 1934; estimated launching, September 21, 1934; estimated delivery, December 8, 1934.

SPEEDEN SHIPBUILDING CO.

Baltimore, Md.

NEW CONSTRUCTION: Hull No. 274 (Diesel), Electric, wrought iron hull, Boarding Cutter, for the U. S. Public Health Service, Staten Island, N. Y.; keel laid March 15, 1934; estimated launching, August 8, 1934; estimated delivery Dec. 27, 1934; L.B.P. 100'8"; beam, 23'; loaded draft, 10'; speed loaded, 12 knots; two 360 B.H.P. Fairbanks Morse engines. Contract received Jan. 11, 1934.

UNITED DRYDOCKS, Inc.

Staten Island, N.Y.

NEW CONSTRUCTION: DD364, destroyer Mahan, estimated delivery, Oct. 1935, and DD365, destroyer Cummings, estimated delivery, Dec., 1935, for U. S. Navy.

UNITED STATES NAVY YARD

Boston, Mass.

NEW CONSTRUCTION: Destroyer DD370, Case, L.B.P. 334'; beam 35'; estimated delivery, Feb. 1936.

Destroyer DD371, Conyngham, L.B.P. 334'; beam 35'; estimated delivery, May, 1936.

Destroyer DD354, Monaghan, L.B.P. 334'; beam 34'2"; keel laid November 21, 1933; estimated delivery, May, 1935.

Destroyer DD351, Macdonough, keel laid May 15, 1933, L.B. P. 334'; beam

34'2"; estimated delivery, March, 1935; for the U.S. Navy.

UNITED STATES NAVY YARD Charleston, S.C.

NEW CONSTRUCTION: U.S.S. **Charleston**, gunboat (PG51) for U. S. Navy, building period assigned by Navy Department, Nov. 1, 1933, to Feb. 1, 1936. Work started Feb. 1, 1934.

Coast Guard Harbor Cutters 61, 63, and 64; work started Feb. 1, 1934; keels laid June 8, 1934.

One **Coast Guard Cutter** (2000 tons). No dates set.

UNITED STATES NAVY YARD New York, N. Y.

NEW CONSTRUCTION: Hull No. 350, **Hull**, destroyer; keel laid, March, 1933; no further dates set; L.B.P. 334'; beam, 34'2"; standard displacement, 1500 tons; geared turbine engines; express type boilers.

Hull No. 353, **Dale**, destroyer, dimensions same as above; keel laid, February 10, 1934; no further dates set.

Hull No. 41, **Brooklyn**, light cruiser, no dates set; L.B.P. 600'; beam 61'8"; standard displacement, 10,000; geared turbine engines; express type boilers.

Hull No. 50, **Erie**, gunboat, no dates set; L. B. P., 308'; beam, 41'; standard displacement, 2000 tons; geared turbine engines; express type boilers. building for U.S. Navy.

UNITED STATES NAVY YARD Philadelphia, Pa.

NEW CONSTRUCTION: **Philadelphia (CL41)**, light cruiser, 10,000 tons, length overall 608'4"; breadth 61'9" extreme; depth 34' at side; estimated completion, Nov., 1936.

American Shipbuilding

(Continued from Page 318)

ANCHOR BARGE BIDS ARE ASKED

Bids were to have been received on September 5 by the United States Engineer's Office, Portland, Oregon, for furnishing all labor and materials, and performing all work for constructing two anchor barges.

FEDERAL CONSIDERS BUILDING TANKERS

It is understood that the Federal Shipbuilding & Dry Dock Company, Kearny, N.J., are considering the construction of two large tankers to be built on speculation.

MOORE DRY DOCK WILL BUILD DREDGER HULL

Contract has been awarded the Moore Dry Dock Company, Oakland, Calif., for the construction of a dredger hull for the Yuba Construction Company, Yuba City, Calif. The price involved was not revealed.

Aylwin (DD355), destroyer, 1500 tons.

Cassin (DD372), destroyer, 1500 tons.

Shaw (DD373) destroyer, 1500 tons. For last three above; length overall 341'3", breadth 34'11 1/2" extreme; depth 23'2" at side; tentative delivery dates January, 1935, February, 1935, May, 1936, respectively; Aylwin launched July 10, 1934.

Four U. S. **Coast Guard cutters** to be delivered December 1935, February, 1936, April 1936, and June 1936, respectively; dimensions: L.B.P., 308'; beam, 41'3 3/4"; loaded draft, 2000.

UNITED STATES NAVY YARD Portsmouth, N. H.

NEW CONSTRUCTION: S.S. **172**, **Porpoise**; keel laid, October 27, 1933; estimated delivery, Feb. 1936, SS **173**, **Pike**, keel laid, Dec. 20, 1933 estimated delivery, May, 1936; L.B.P., 289'-0"; beam 24'-11 1/16"; loaded draft 13'-9"; diesel electric engines.

Coast Guard Harbor Cutter 62 Hudson; estimated delivery, Nov. 1934; L.B.P. 104'-0"; beam 24'-0"; loaded draft 10'-6"; diesel electric engines.

UNITED STATES NAVY YARD Portsmouth, Va.

NEW CONSTRUCTION: **Torpedo Boat Destroyer Tucker (DD374)** for U.S. Navy, 341 ft. long; beam 35'; loaded draft, 10'10"; treaty standard displacement, 1500 tons; No. 4 boilers; 35 knots speed; estimated delivery, February, 1936.

Torpedo Boat Destroyer Downes (DD375) for U.S. Navy, 344 ft. long; beam 35'; loaded draft, 10'10"; treaty standard displacement, 1500 tons; No. 4 boilers; 35 knots speed; estimated delivery, May, 1936. Laying down lines under way in mold loft.

CONTRACT AWARDED FOR RHODODENDRON

Superintendent of Lighthouses, Portland, Oregon, has awarded contract to the Commercial Iron Works, Portland, Oregon, for the construction of the lighthouse tender, **Rhododendron**, bids for which were received on July 23. The vessel, which will be of all steel construction, will have two six-cylinder diesel engines, each developing 120 horsepower, giving the craft a speed of 11 knots. Specifications for the vessel include: length overall, 80 feet 6 1/2 inches; beam molded, 19 feet; depth at side 5 feet 11 inches. She will be of the tunnel stern type, particularly adapted for service in the Columbia and Willamette Rivers, operating at times in very shallow water and on swift rapids.

RUMOR SAYS UNITED D.D. CONTRACTING FOR WELDED BARGES

Negotiations are under way, according to report, for the construction of a number of welded barges at the Truss Weld Division of United Dry Docks, Inc., New York. Four barges of this type have recently been finished at the Crane Plant of the United Dry Docks. It is expected that the matter will be completed within a short time, after which the name of the owner, amount involved, etc., will be made public.

SEATTLE FIRM PREPARES CONVERSION PLANS

The Wallace Bridge and Structural Steel Company, Seattle, Washington, are preparing plans for the conversion of several vessels into a whaling fleet, according to report. It is understood that application is being filed by this company with the United States Shipping Board Bureau for a loan under the new fisheries bill. Additional information will be available in the near future.

TODD ACQUIRES GALVESTON PLANT

John D. Reilly, president of the Todd Shipyards Corporation, recently announced the acquisition of the plant and equipment of the Galveston Dry Dock & Construction Co., of Texas.

The Galveston Dry Dock, Inc., is the new subsidiary formed to operate the plant and, with final details consummated, the Todd Company formally began operations on September 1.

At the present time, the plant has one 10,000-ton floating dry dock and one marine railway of sufficient capacity to handle vessels of 1,500 tons. Mr. Reilly stated that plans have been under way for some weeks to increase the capacity of the plant and that within a short time another 10,000-ton floating dry dock and other equipment would be in service there.

The new plant is easily accessible to the ship channels for the ports of Houston, Beaumont, and Texas City, as well as Galveston. The Todd Corporation a year ago planned to construct a yard in Houston. Unanticipated delays occurred, however, and it was decided to take over the Galveston property.

Trade Notes

Machinery Firm Expands. Twenty-two years ago the General Machinery and Supply Company incorporated for business as a mill supply and heavy hardware house.

Enlarging the scope of its activities over this period, the organization has identified itself as dealer in marine and industrial supplies and equipment, earning the patronage of leading firms in the northern California industrial territory and in the San Francisco maritime district.

It is a pleasure to record that the growth of this company's business has made enlarged quarters necessary. The new offices, sales rooms and warehouse will be located at 1346 Folsom Street, between 9th and 10th, in San Francisco. The removal date has been announced at September 15.

The personnel of General Machinery and Supply Company is headed by Mr. Allen Green, president; Mr. Russell Pratt, vice president; and Mr. Victor L. Schath, secretary.

In their former Stevenson Street location the firm developed their supply business to the degree that increased facilities, as well as larger warehousing and display space, were required. The new location was selected with prime consideration to counter trade. A floor salesman will be available throughout business hours, so that buyers will have prompt service. Excellent parking space for visitors is also provided at the Folsom Street building — no small factor in this day of limited parking facilities.

The organization operates a unique delivery service with an effi-

cient fleet of trucks. Quick service to all San Francisco and Oakland points will be maintained with full dispatch.

General Machinery and Supply Company, a house long established and linked with San Francisco's reputation as purchasing headquarters for the northern California trade, is to be congratulated for the years of business integrity which have justified this expansion of their service.

Freights, Charters, Sales

September 14, 1934.

The feature of the Pacific Coast freight market since our last report has been the strong demand for tonnage to load grain for Atlantic Coast ports. Under the restrictions of the Copeland Act none of this cargo can move on a rate basis, so all of these fixtures are time charters.

Aside from this trade, the market has been firmer all round in sympathy with the general strengthening of rates in all world trades.

Wheat rates from British Columbia to U. K. ports are quite firm around 20/-, but Continental space is not in demand and 5/- less can be done.

Following is a list of fixtures:

Grain and General Cargo

British steamer Yearby, Vancouver U.K., one picked port, 20.3. British steamer Umlerleigh, British steamer Quarrington Court, British steamer Pukkastan, British steamer Dallington Court, Vancouver U.K./Cont., p.t.; British steamer Kirkpool,

101 Uses for the Air Acetylene Flame has just been announced by The Linde Air Products Company. The field of this pamphlet is so large and the subject is treated in such a comprehensive manner that every repair shop will welcome it eagerly as a handy reference guide.

It is pointed out that the air-acetylene flame does not take the place of the widely-used oxy-acetylene flame, but serves as a supplementary tool for use where lower flame temperatures are required.

British Columbia picked ports U.K., 20/6.

Time Charter, Etc.

Norwegian motorship Norne, one trip delivery Pacific Coast redelivery Japan, 4/6; British steamer Waziristan, British Columbia/Australia, lump sum, £4100 f.i.o.; Swedish motorship Murjek, delivery North Pacific, redelivery Europe, via Australia, p.t.; American steamers American Cardinal, Marsodak, American Eagle, Frieda, Mauna Loa, Makiki, Constance Chandler, Georgian, Mary D., Wildwood, all Intercoastal trade. Swedish motorship Pajala, delivery North Pacific, redelivery Japan, 4/4½; Danish motorships Nordpol and Nordhaven, one round, delivery and redelivery U.K./Cont., 3/3.

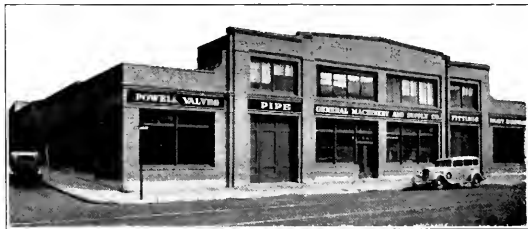
Tankers

Norwegian motorship Chr. Th. Boe, California/Japan (dirty), 10/3; British motorship Athel —, California/Japan (dirty) 37c per bbl. 1 port, 35c, 2 ports, 2 or 3 voyages; Norwegian motorship Marion, California to 4 ports New Zealand (clean), lump sum £7000.

Sales

American steamer F. S. Loop, Loop Lumber Co. to Wm. Gissler, p.t.; American steamer Bandon, Moore Mill & Timber Co. to Wills Co. p.t.; American steamer Remus, U.S. Shipping Board to Gulf Pacific Nav. Co., \$65,000.

PAGE BROTHERS,
Brokers.



New home of the General Machinery and Supply Company,
San Francisco, California.

*Pacific
Marine Review*

Pacific Marine Personals

"NAMES ARE NEWS" ★ BY BERNARD De ROCHIE

"MAC" OF SPERRY BACK AT HOME PORT

J. F. McConkey sailed a true course back to the San Francisco headquarters of Sperry Gyroscope Company—after four months in the Los Angeles district installing and testing 62 automatic pilots for aircraft.

"What's the automatic pilot all about?" says we. And the Sperry expert responds: "The automatic pilot guides the airplane through fog or darkness or any kind of weather, hour after hour, leaving the human pilot fresh and mentally alert to keep communication with the ground, pick up the radio beam, and follow it in to the station."

Congratulations, Mac, on the successful conclusion of the elaborate tests. Sixty-two automatic pilots used by the birdmen 99 per cent of the time aloft. Boy — that's a BIG lot to air transportation.

Walter G. Hays of Marsh and McLennan, nationally reputed average adjusters, will open the series of ten lectures on marine insurance to be conducted as a course by the Extension Division of the University of California. You, you and you are invited to enroll to become enlightened on subjects of marine insurance practice.

Edward T. Cairns, vice-president Fireman's Fund group of fire and casualty companies, is in the East where he will visit company departmental offices in Chicago, New York and Boston. Mr. Cairns plans to attend the annual meeting of the Western Underwriters Association at Manchester, Vermont, September 18.

Enroute to the head office in San Francisco, he will stop in Denver, Colorado, to attend a meeting of the Supervisory Committee of the Rocky Mountain Underwriters Association, October 4.

● U. O. T. Appoints General

Harry T. Scott, president of General Steamship Corporation, reports the success of months of negotiation, and—

—the gigantic fleet of United Ocean Transport Company, Ltd., of Kobe have appointed General Steamship as agents on the Pacific Coast —United States and Canada.

Big job for R. S. Wintermute promoted to vice-presidency—in charge of the Pacific Northwest district—as ten sailings per month are planned out of that district for U.O.T. alone.

● Curtailing Cargoes

Sounding a warning to every western engaged in the growing, packing and distributing of Washington, Oregon, and California fruits and agricultural products, Douglas G. McPhee, editor of Western Advertising, broadcast a radio talk scoring Secretary of Agriculture Henry A. Wallace and the Agricultural Adjustment Act. Marketing agreements failing to recognize the necessity of advertising are placing a serious handicap on the distribution of Pacific Coast products. Some of the largest advertising accounts in the West are in jeopardy and curtailed advertising—or possibly no advertising at all—would greatly diminish the output—a goodly percentage of which is waterborne.

Charles L. Wheeler, vice-president and manager of McCormick Steamship Company, in announcing greatly improved service for shippers over their Pacific Coastwise Service, Pacific Atlantic Service, Pacific West Indies Service, and Pacific-Argentine-Brazil Line, points out that the big McCormick fleet now totals 35 vessels or over 200,000 deadweight tons.

C. J. Conklin, Luckenbach inspector at Pedro addressed the Plimsoll Club on September 17.

Jack Parkinson presided over a well-attended and enthusiastic meeting. Speaker Conklin talked on water freight solicitation.

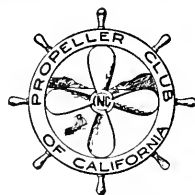
Guy E. Buck, with legions of friends in Coast Maritime circles is going full speed ahead as Los Angeles District Manager of the Grace Line. He recently announced to Southern California shippers increased service of Santa ships, permitting a run of 15 days from New York to his port. Greetings and best wishes, Guy E.,—from your friends of California, Pine, Market, and the good old Embarcadero!

L. T. Lancaster is the new general passenger agent for the American Mail Line and the Pacific Steamship Lines, Ltd., in Seattle, as announced by Vice-President A. F. Haines. He was formerly assistant G.P.A. and has more than twenty-five years of transportation business experience as his background.

K. C. Conyers comes into the newly created position of district manager, Columbia River District, to assist Hillman Lueddemann, McCormick Northwest Manager, with his duties managing the lumber as well as steamship activities of the company.

The Fred Olsen Steamship Company have appointed Frank E. Short as general passenger agent. The company operate motorships Abraham Lincoln, Benjamin Franklin, Knute Nelson, Laurits Swenson, Granville and Nansenville to Europe. Mr. Short was former general passenger agent of United States Line in Los Angeles. Moreover, he was formerly associated with the estimable magazine you are now reading.

PROPELLER CLUB of California



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San Francisco

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| John T. Greany | |

● Luncheon Meeting, September 11

The call "all hands on deck" brought out a fine attendance at the first meeting of the club's fall sailing schedule. Propellers were aboard whom we haven't seen for several voyages. The head table was flanked port and starboard by members of the governing body with Harry T. Haviside presiding.

Many guests were introduced, including Jack Young, who had journeyed over two thousand miles to attend.

Harry Haviside tossed the meeting to Dick Glissman and several entertainment acts were presented by this soft-spoken member of the program committee.

On September 25, we were addressed by our fellow member, Captain Ike Smith, who as master of the steamer *El Segundo* led an expedition into the Persian Gulf, establishing a marine terminal and laying a submarine pipe line in the uppermost portion of the Gulf. Captain Smith's talk was very interesting. He not only told of the activities of the expedition, but also narrated many interesting incidents regarding the customs of the people. His talk was amplified with moving pictures which were taken under very adverse conditions such as intense heat, and so forth. Leo Baldwin, accompanied by Phil Coxon, rendered some very pleasing vocal selections. Mr. Chas.

Robertson, Chairman of our Board of Governors, presided.

A colorful touch was added by the appearance of Elmer Nelson arrayed in an authentic Arabic sheik costume.

—P C—

● Banquet

Our banquet which, due to circumstances, was postponed in May, is again in the offing. The Board of Governors will decide on the date and the place in the near future. The Entertainment Committee will then draw up plans and specifications for a maritime evening that will go down in the Log Book as one of the best.

—P C—

● Out Ahead!

The program committee announces that Colonel B. C. Allin, director of the Port of Stockton, will address our October 9 luncheon meeting, telling us about the development of this newest of Pacific Coast harbors.

—P C—

● Golf Tournament

Arrangements are being made to hold our third Golf Tournament at the California Country Club on October 18, 1934. The committee are on the job pruning down the handicaps of those who have developed into champions since the last tournament. We could never forget the splendid time and dinner that the California Club gave us the last time

we were down there, and you can rest assured that they will repeat.

—P C—

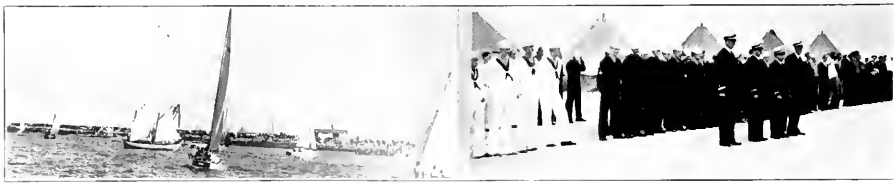
The members of the Propeller Club may feel justly proud of the boys of Sea Scout Ship Alert No. 113 which they sponsor. The boys brought home the bacon from the big Sea Scout meet at Redwood City Yacht Harbor the 1st, 2nd and 3rd of September.

Of fifteen prizes offered for competition the San Francisco group took nine and the Aleft won five of those. The awards were made for such contests as: A whale boat sailing race over a two and a half mile course, swimming, general inspection and others. They added to the ship's treasures a ship's bell, a small yacht compass, and a life ring.

Sea Scout ships from all over Central California were represented. Over two hundred boys were present as well as many of the Sea Scout official from regional headquarters.

The genial host, San Mateo Council, hopes to make this an annual event. And from all indications it will be on the calendar as a red letter day for Sea Scouting.

On the return to San Francisco in the Alert's power boat, Dauntless, Mr. Warren McBride, chairman of the Regional Committee for Sea Scouting, was the guest of the ship and skipper Geo. C. Jones.



The whaleboat Alert (113) tuning up for the race which the lads won by a three-quarter mile lead.

Lads in Blue! Sea Scout Ship Alert (113) at quarters for inspection.

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Among the Americans decorated by the King of Italy for aid rendered during the Balbo mass flight to the United States in 1933 are ten men who served the radio communications requirements of the expedition. Most of them are marine radio men. It will be recalled that it was through the powerful Mackay Radio station at Sayville, L. I., that contact was maintained with General Balbo's planes from the time they left their base in Italy.

The following awards to communication men have been announced: Grand Officers of the Crown of Italy: Colonel Sosthenes Behn, President of the International Telephone and Telegraph Corporation, and Mr. Ellery W. Stone, Operating Vice President of Mackay Radio; Commanders of the Crown of Italy: Mr. H. H. Buttner, Vice President of Mackay Radio, and Captain Pilade Leoni, International Telephone and Telegraph Corporation; Chevaliers of the Crown of Italy: Mr. Edgar D. Thornburgh, Advertising and Press Manager, International Telephone and Telegraph Corporation; Mr. T. E. Nivison, General Superintendent; Mr. J. A. Bossen, Marine Commercial Manager; and Mr. W. O. Lee, Manager Sayville Station, Mackay Radio; and Mr. T. N. Powers and Mr. Charles W. Oram, traffic experts of Postal Telegraph.

Harry F. Legg, assistant vice-president of the Fireman's Fund Indemnity Company, and Watson H. Caudill, assistant secretary, are returning East after visiting in San Francisco for the past two weeks, where they were in conference with head office officials, and they are now en route to departmental offices in New York.

Monty J. Wright, Pacific Coast manager of Luckenbach, points with pride to their fine new freighter, the William Luckenbach, formerly the Rappahannock. We say "new"—as the ship is virtually that—so expert was the reconstruction job. She'll take 16 passengers in de luxe cabins. Her first sailing, mid-September.

Herman D. Nichols, vice-president of Tubbs Cordage Company, reports

the visit of Jack Young of the Honolulu firm of Young Brothers, operators of seagoing tugs in spectacular service in the inter-island trade. It was Jack Young who three years ago directed the historic tow by the Mamoo—of two steel barges—from the Golden Gate to Hawaii, a little run of 2100 miles—and thought nothing of it!

Jack Young regaled a table-load of Propellers at the September 11 luncheon with fascinating accounts of barging "pines" between Maui, Molokai and Honolulu.

Jack has many unique towing methods. They have to be good, says he, to battle through a stretch that makes the English Channel look like a "sissy mill-pond"!

After scouting local marine "cigarette circles" frantically for two weeks—in search of a nice clean "joke of the month"—after discarding fifteen Mac West stories—and a basketful of others, which, when renovated would lose their humor, we crash through with the following as dramatically rendered by W. Edgar Martin, marine expert of Westinghouse:

"This fellow I'm telling you about," Eddie narrates, "had about fifteen children—kids all over the house—a new arrival every year. Little Willie, aged six, was taken in one morning to see 'the old man' who was laid up with the flu.

"Little Willie tip-toed quietly to the bedside, sat alongside for a few silent minutes, then said to his father: 'I been good, ain't I, Pop?'

"Yes, son,' the old man whispered.

"Well, then, how about it? Kin I see your kid?'"

Runner-up comes from Carl Lane, who holds forth in the Balfour Building. Here's Carl's yarn:

They had new neighbors and the wife was very much interested in them. In a few days she reported:

"They seem a most devoted couple, John. He kisses her every time he goes out, and even waves kisses to her from the sidewalk. Why don't you do that?"

"Why don't I?" replied John. "Good heavens, I don't even know her yet."

Which reminds us of the gag about the fellow with the homely wife. My gosh—but she was homely!

Some friend asked him: "How come you always bring her with you—conventions, business trips, and all that?"

"Well, you see I'd rather bring her along than kiss her goodbye!"

By the way, get one of the boys at 56 Stuart Street to tell you the one about the Jewish rope salesman.

Well, to get back to our Personals—did you know that D. N. Lillemund, who has been in charge of Grace Line terminals in Seattle, has been transferred to Los Angeles, where he will take up the position of terminal superintendent!

Harry Thompson, sub-manager in Seattle, also goes to Guy E. Buck's district.

J. L. Haff has been appointed manager of the Seattle office of the Anderson-Mattoon Company.

At this writing Harry T. Haviside is directing the job of pulling off purse seiner Ohio No. 3 from her Pigeon Point beaching. Haviside Barge No. 4 is doing the trick of refloating the vessel.

Tirey L. Ford, executive of Swayne & Hoyt, Ltd., reports the purchase of the Remus for the Gulf Pacific Mail Line service. The vessel will be renamed Point Judith. Another 'Point' ship for the big fleet.

The annual Steamship Dinner, an occasion which brings hundreds of Coast Steamship officials into San Francisco, will soon be heralded.

W. J. Edwards, of Norton Lilly, is holding the preliminary meetings incident to committee appointments in his office.

Robert C. Ellis comes to San Francisco as newly appointed assistant manager of Anderson-Mattoon. He formerly worked for Swayne & Hoyt, Ltd., in Los Angeles.

On the Pacific Coast

Q. Which is the pioneer shipping magazine?

A. Pacific Marine Review.

Q. When was it established?

A. In 1904.

Q. How long has it served Pacific ship operating lines?

A. Thirty years.

Q. Does it cover the entire Pacific seaboard?

A. Every port—every maritime district!

Q. Does it provide a link between marine manufacturers—and their Pacific marine market?

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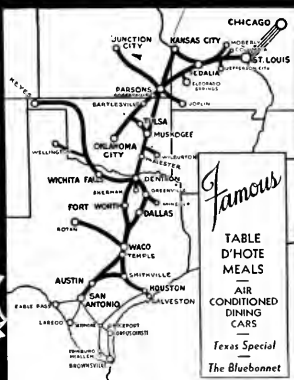
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Great Interest Shown in San Francisco Bay Development



Much interest was shown by visitors at the California State Fair in the plans for development of the San Francisco Bay District.

Adjoining the booth of the Columbia Steel Company in the Machinery Building was a 65 foot model of the West Bay span of the San Francisco-Oakland Bay Bridge, shown through the courtesy of Mr. Earl Lee Kelly, State Director of Public Works.

Motion pictures showing construc-

tion of the Bay Bridge piers and towers were also shown, and the many visitors were thrilled at the sight of a large Dollar Line steamer passing beneath one of the giant steel towers. Pictures of the Isthmian Steamship Company steamer Atlanta City discharging cable saddles at the bridge site, castings weighing 40 tons each that are mounted on the top of the towers to support the 286-inch cables, were also viewed.

The Columbia Steel Company, subsidiary of United States Steel Corporation, also displayed samples of their complete line of products, including American wire rope and castings, manufactured in their Pacific Coast mills.

A nail machine from their Pittsburg, California plant actually manufacturing wire nails at the rate of 450 per minute also attracted large crowds.

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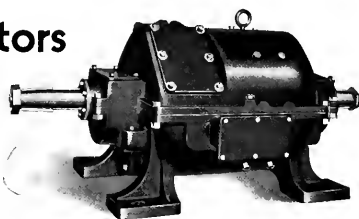
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Pacific Marine Review

NOVEMBER 1934

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Warren Steam Pump Co., Inc.
Yorkshire Copper Works, Inc.

The management and personnel desire to thank the firm's
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the past eleven years. Members of the Pacific marine, industrial,
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same careful service at the House of Marine and Industrial
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Pacific Marine Review

The National Magazine of Shipping

VOLUME XXXI

NOVEMBER, 1934

NUMBER 11

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Official Organ
**Shipowners' Association
of the Pacific Coast**

Alexander J. Dickie
Editor
M. J. Sutor
Asst. Editor

Chas. F. A. Mann, Northwestern Representative, 1110 Puget Sound Bank Bldg., Tacoma, Washington.

In New York copies of Pacific Marine Review can be purchased at the news stand of I. Goldberg, 42 Broadway; and the news stand of Jacob Fuchs at 17 Battery Place at 25c per copy.

that Italy between 1927 and 1932, inclusive, paid an annual grant of over fourteen million dollars to improve its shipping. By building the magnificent super liners Rex and Conte di Savoia and other smaller ships not so famous, Italy became the largest carrier of passengers in the Trans-Atlantic trade, and, incidentally increased her tourist business to a very lucrative degree.

France expended annually between 1923 and 1931 about 41 million dollars. The government reorganized the French Line; advanced the French Line huge sums, provided adequate working capital, and guaranteed sufficient subsidy for fourteen years. So now we see the super liner Normandie of the French Line nearly ready for the conquest of the Atlantic.

Germany furnished shipping a credit of 700 million marks to secure ships after the war. The German government engineered the merger of the North German Lloyd and the Hamburg-America Line to place them in stronger position to compete for the trade. In effecting this merger they guaranteed huge loans, and now they have the justly famous Bremen and Europa. The German government further allotted twelve million marks to augment scrapping of old and the building of new, efficient tonnage. In 1933 they allotted twenty million marks to help pay crew and navigation bounties.

Great Britain advanced three million pounds sterling, about \$14,580,000.00, to complete the now famous super liner Queen Mary, and another five million pounds sterling, about \$24,300,000.00, to build a sistership to the Queen Mary. In addition the Imperial government has made other huge advances and shipbuilding loan guarantees to permit the British owner to adequately modernize his fleet and provide a service in conformity with the future needs of a world trade demanding superior yet efficient ships to carry its commerce. They provide comfortable passenger liners to stimulate passenger travel. Experience was taught them that frequent visits abroad with resultant free interchange of ideas stimulate trade, and when they can secure American travel on their ships it is further to the good. They realize that the ship must come first and that commerce and travel follow. Wise

George Washington in 1790:

"We should not overlook the tendency of war to abridge the means, and thereby at least to enhance the price, of transporting productions to their proper markets. I recommend it to the serious reflections of Congress how far and in what mode it may be expedient to guard against embarrassments from these contingencies by such encouragement to our navigation as will render our commerce and agriculture less dependent on foreign bottoms which may fail us in the very moments most interesting to both these great objects. . . . There can be no greater error than to expect or calculate upon real favors from nation to nation. It is an illusion which experience must cure."

old England—always muddling through. Let us see how she muddles. The ships of Great Britain carry 90 per cent of cargoes interchanged between British Empire ports. As these ports are scattered all over the globe, this is a nice healthy transportation picture. Further, her ships carry 60 per cent of all cargoes between Great Britain and other foreign countries not within the Empire. Almost 50 per cent of all the world products transported across the seas are carried in British flag ships. And of the American products the British flag vessels carry 30 per cent, about the same quantity that American flag vessels carry in their own trade. No wonder she is building ships!

Northern Ireland does a lot of shipbuilding. The shipyards need the business. The men want the work. Shipowners need replacements to keep their fleets up to modern practices. To stimulate shipbuilding in Ireland, the government of Northern Ireland has guaranteed principal and interest, for various periods up to twelve years, on loans for shipbuilding purposes now in the amount of \$15,188,307, or \$73,815,172.02. Results: A modern fleet of ships, great numbers of men employed, and strategic shipbuilding yards kept busy.

Each of these measures would provide interesting analysis, comparisons and effect.

● American Shipping an Economic Development.

Some of our leading men think we have now passed through a complete circle in our maritime history and

that from an economic standpoint it may now be of interest to individual initiative to develop an American built, owned and operated fleet. I frankly think so. Our commerce is adequate. Our traveling public is great. Our national aim is to carry the greater part of our commerce. This naturally also contemplates American traveling public sailing on modern, up-to-date, comfortable and safe American liners. We have the initiative, mechanical aptitude, knowledge, capital and, out of a glorious past, tradition. Why, then, are we not going ahead with our building program in accordance with our mandated aim? The world condition and depressed markets undoubtedly have something to do with it. This depression is world wide, and yet British, French, Italian, Japanese and other owners, backed by farsighted and ship-minded governments and peoples are building ships. If that is so, why should not we also build in order to replace most, if not all, of our obsolete tonnage?

● Cut Throat Competition

Well, the secret must be let out. The trouble is: Competition! Utter chaos! Havocous, unfair, ruinous, cut-throat competition.

No one questions the right of anyone, be he American or foreigner, to enter any trade route, or any market, to compete for business, provided it is fair and above board competition. But competition such as has existed for the past five years from both the Atlantic and the Pacific coasts is inimical to the American merchant marine and to the foreign commerce of the United States. It is a fundamental principle that foreign markets, or any market or trade, cannot be developed without a reasonable stability. American commerce must be protected by an adequate American ship service. Commerce always follows the flag. American ships and American officers and seamen are ambassadors of goodwill and friendship. Continuous and stable development in foreign trade depends upon American flag service. Chaos and instability in freight rates and resultant c.i.f. prices retard any business.

No owner will risk building ships, however badly he may need them, for present or future in any unstable trade. Investments in ships espec-

Thomas Jefferson:

"The most of our products will be at the mercy of any nation which has possessed itself exclusively of the means of carrying them, and our policy may be influenced by those who command our commerce... It is a resource of defense that our navigation will admit neither neglect nor forbearance. The carriage of our commodities if once established in another channel cannot be resumed in the moment we may desire."

ially built and equipped for a particular trade and probably not suitable for other trades become a liability in a trade route racked by a rate war over a period of years.

The Alexander shipping investigation committee fully realized this. As a result of their report the Shipping Act of 1916 was passed. It disclosed a desirability, in fact, a necessity, of steamship conferences in order to stabilize rates, promulgate rules and regulations, and promote close cooperation among all lines to the welfare of owners, shippers and the public.

When the war-built American fleet was placed in the hands of private firms to operate in the various trades, many being in the same trade routes but from different American ports, the then Shipping Board was very active in forming associations of operating agents in the same trade, to avoid competition among themselves, and to discuss their many mutual problems. The effort of the board was to effect a 100 per cent cooperative conference of all operators in similar trades in order to secure stability. This effort was an operating function rather than a regulatory function.

Eventually these agents began to work with foreign operators in the same trade, again for stabilization purposes. These meetings and agreements resulted in the forming of various trade conferences. For our discussion I shall limit the subject to the Atlantic Far East and Pacific Westbound conferences, of which I have personal knowledge.

● **Atlantic-Far East Conference**

The Atlantic-Far East Conference was formed September 1922. All operators in the trade joined. To begin they had only 35 classified items

in the tariff. No conference or steamship line can live on paper rates. Freight rates must be made to permit merchants to sell and purchase. The present tariff has over 1500 classified items, practically all made at request of shippers. We must remember that classified items are almost exclusively lower than the general cargo rates. This should dispose of any monopolistic argument. Further, it shows flexibility to meet changing conditions and competition from foreign countries dealing in the same commodity in the same market.

When the conference was formed in 1922 practically all the ships were 10 to 10½ knots. There was no outside competition, but there was plenty of competition within the conference. One line inaugurated sailings on fixed dates, whether ship booked full or not. Another installed strong rooms for bullion. Some built new ships with more speed and with refrigerated cargo space and deep tanks for bulk vegetable oils. Others increased frequency of sailings. All of this produced a steady progress, to keep apace and ahead of public demand. This extra service promoted trade. Owners were justified in these investments. They were based upon stability of rates and conditions, and upon experience in the trade.

● **Pacific-Westbound Conference**

The Pacific-Westbound Conference was organized January 1923. Here owners were not so fortunate. The Pacific Coast has many bulk commodities, such as lumber and wheat, suitable for the lowly tramp, and if the Japanese tramp ships had held to the full cargo movements the liner business, as popularly considered, catering to fast freight and passengers would have developed more freely.

There are similar commodities moving from both the Atlantic and Pacific coasts to the Far East, and railroads haul export and import cargoes across the American continent. In order, therefore, to prevent discrimination and unfair competition, and to stabilize business for all alike, the Atlantic-Far East and the Pacific Westbound conferences joined hands across the continent. Permanent rate committees were established to study local competitive as

well as overland rates based upon through bills of lading for both the rail and steamer hauls. Railroads, exporters and importers were consulted. Investigations were made of local requirements and rates established equitable to manufacturers and exporters on both coasts. Costs of production and landed costs in ultimate markets on foreign goods were closely determined and freight rates from this country adjusted to place the American exporter on a competitive basis. This kind of research and equitable stabilization can best be performed by a group of shipowners banded together in a conference in any particular trade. All conference tariff rates and charges, rules and regulations, and membership are filed with the Shipping Board Bureau, Department of Commerce. It is maintained that the bureau has full regulatory power under the Shipping Act of 1916 and the Merchant Marine Act of 1920.

From 1922 to 1928, under complete stability, owners expanded rapidly, services were extended, additional ports were added, and new territories opened up as business demands required.

● **Non-Conference Cut-Rate Service**

In June 1928 the Danish flag vessels of the Maersk Line inaugurated a non-conference cut rate service under the operating management of the Isbrandtsen-Moller Company of New York. Due to the general world depression coupled with the fact that the regular established conference lines by reason of this depression already had a surplus of tonnage in the trade, this rate-cutting competition set off the spark that started a conflagration.

The Maersk Line started with one ship per month. Lately they have had as many as three ships in a month. As is usual with this style of service, they started by contracting for large quantities of heavy movement commodities as basic cargo. The balance of the space they filled by berthing

President Cleveland, annual message 1874:

"Millions now paid to foreigners for carrying American passengers and products across the sea should be turned into American hands."

the ship and booking cargo at 10 per cent or more less than conference rates. Naturally the rates on the basic cargoes were special rates. Then the fun began! The Atlantic-Far East Conference members, composed largely of foreign owned and foreign flag vessels, and serving the Atlantic Coast Orient only, wanted to meet this competition and recapture the cargoes lost. They petitioned the Pacific-Westbound Conference for permission to meet competition as it developed. The Pacific-Westbound members, also largely foreign owners, had troubles of their own, and naturally wanted to hold at least the local competitive rates in line and prevent chaos. The result was that in September 1930 the Atlantic-Far East Conference broke off the agreement with the Pacific-Westbound Conference on local competitive and overland cargo in order to meet the Maersk Line competition. Several British lines resigned from the Atlantic-Far East Conference, but subsequently rejoined.

● Instability and Chaos

The Ellerman-Bucknall Steamship Company, American - Manchuria Line, finally broke away entirely. They went the Maersk Line one better, and what happened to the rates is shown in Table A.

Rates were not stable. Each non-conference ship was and now is a bargain hunt in itself. Shippers never know what rate to quote ahead. Two or more rates have been quoted and the cargo booked by different shippers on the same ship for the same commodity. Allowing that the shippers of the high rated cargo were given the benefit of the lower rate adjustment, it is still far from stability. To further draw cargo the non-conference lines established a 5 per cent brokerage. The custom and established brokerage on the Atlantic coast was and is 1/4 per cent, and is adhered to by the Atlantic-Far East Conference members.

The Pacific Coast situation was

TABLE A.

| | |
|--------------------------|--------------------------------|
| Groceries | From \$16.00 to \$8.00 per ton |
| Soap | From \$10.00 to \$5.00 per ton |
| Machinery | From \$16.00 to \$4.00 per ton |
| Cotton Piece Goods | From \$20.00 to \$4.00 per ton |
| Automobiles | From \$16.00 to \$4.00 per ton |
| Radios, etc. | From \$20.00 to \$4.00 per ton |

TABLE B.

| | | | |
|--------------------|-------------------|-------------|----------------|
| Rice..... | May, 1927, \$5.00 | July, 1933, | \$1.50 per ton |
| Salt..... | May, 1929, \$5.00 | Dec., 1932 | \$2.75 per ton |
| Old Newspaper..... | May, 1929, \$7.50 | Feb., 1933 | \$2.50 per ton |
| Cotton..... | May, 1929, \$9.00 | Now, 1934 | \$4.50 per ton |
| Flour..... | July, 1929 \$5.50 | March, 1933 | \$2.75 per ton |

Besides open rate and other items.

not any better. Here it has been found impossible to properly stabilize rates on wheat, lumber, flour, wood pulp, and other commodities. A look at 1933 sailings out of the Pacific Northwest may be illuminating:

Conference Lines

| | |
|--------------------------------|-----|
| Nippon Yusen Kaisha | 24 |
| Blue Funnel Line | 18 |
| Tacoma-Oriental S.S. Co. | 24 |
| American Mail Line | 25 |
| States S.S. Co. | 39 |
| Canadian Pacific S.S. Co. | 26 |
| Klaveness Line | 12 |
| Totals | 168 |

Non-Conference Lines

| | |
|---------------------------------|----|
| Yamashita and affiliations..... | 60 |
| Ocean Transport Co. | 32 |
| British Canadian S.S. Co. | 30 |
| East Asiatic Co. | 16 |
| Mitsui | 20 |
| Various tramps | 12 |

Total.....170

● Pacific Non-Conference Competition

The Japanese endeavored to form their own trans-Pacific freight conference. By cabled orders from Japan it was dissolved before it actually got started—in fact, while the Pacific-Westbound Conference was negotiating rate agreements with them. In 1926 the Japanese tramp ship invaded the California territory strongly. Large shipments of rice were contracted for; likewise cotton, borax, and other commodities. These shipments were used as starting parcels on the berth and conference rates cut as much as 50 per cent to fill the balance of the space. The

effect of this competition is shown in Table B.

The Maersk Line, Danish flag, at first only took on fuel oil at Los Angeles. In 1929 they appointed agents and started to book cargo. They generally used the conference rate as a yardstick, underquoting 10 per cent, or so on small lots, and any rate to secure the business on large quantities.

In September 1932 the Chinese-American Line (East Asiatic Company), Danish flag, started a service from Pacific Coast ports to the Orient. They also used conference rates as a yardstick and cut 15 per cent or so below established rates on small lots. They booked apples at 35 cents per box against the conference rate of 60 cents per box.

In November 1932 Ellerman, Bucknall Steamship Company — American-Manchuria Line, British flag, sent their ships to California for cargo. To begin with they cut conference rates as follows:

\$ 3.00 or less, deduct 25c
 \$ 3.00 to \$5.00, deduct 20 per cent
 \$ 5.20 to \$10.00, deduct.....25 per cent
 \$10.00 or over, deduct.....30 per cent

Then, as on the Atlantic, Ellerman-Bucknall became ambitious and the rate picture became as shown in Table C.

Brokerage was not and is not paid by the Pacific-Westbound conference on local cargo, but all of the above lines pay brokerage.

● Consequences of Rate Cutting.

These rates are too low. They make profitable operation impossible. These rates will eventually drive the American owner out of our trade. This competition is discriminatory to shipowners and the shipping public alike. This instability is inimical to the foreign commerce of the United States of America. It is against the principles established by law through the Shipping Act of 1916 and the Merchant Marine Act of 1920.

But before we develop the last paragraph let us compare conference and non-conference lines.

TABLE C

| | |
|-------------------------|--|
| Bags and Bagging..... | May 1929 \$14.00 cut to \$4.00 Jan. 1934 |
| Groceries..... | May 1929 \$16.00 cut to \$5.00 Jan. 1934 |
| Red and White Lead..... | May 1929 \$12.00 cut to \$5.00 Jan. 1934 |
| Paint..... | May 1929 \$12.00 cut to \$5.00 Jan. 1934 |
| Printing Paper..... | May 1929 \$10.00 cut to \$5.00 Jan. 1934 |
| Plumbing Supplies..... | May 1929 \$12.00 cut to \$5.00 Jan. 1934 |
| Soap..... | May 1929 \$10.00 cut to \$5.00 Jan. 1934 |
| Dried Fruit..... | May 1929 \$12.00 cut to \$5.00 Jan. 1934 |
| Tank Material..... | May 1929 \$10.00 cut to \$3.50 Jan. 1934 |

Conference lines are usually operators of long standing. They are thoroughly responsible and own their own ships in the trade. They have invested large sums of money in building ships especially suited for the trade. These ships are usually speedy, have special equipment which the trade needs and demands. Hence they have an initial cost far in excess of ships not so speedy and not so equipped. If the owner is an American and operates under the American flag he has the further handicap of heavy initial costs greatly in excess of foreign built ships of the same type, speed and equipment, plus greater operating and maintenance costs.

The non-conference operator may or may not be an owner. He may be a general agent for a foreign firm, or he may be an employee of a foreign owner, or an independent charterer, securing cheap tonnage when able. He is usually a general agent and/or a charterer. Hence a non-conference operator's business has not the stable character such as an owner within a conference usually has. Not being an owner, he is not always able to name ships in advance. He frequently has to advertise "A Steamer" up to a week or two ahead of loading. Compare this with owners who advertise a full year ahead. He does not provide his own out-port or foreign port organization, usually working through agents. By holding off naming the steamer until a week or two before loading date, he is often able to fit a ship to cargo offerings and avoid sailing with free space. Further, the same ship or ships may not remain in the trade. They often are placed on the berth for just one load and if better business offers may, and do, go elsewhere.

The conference owner bases his investment in ships on the needs of that trade, stability in rates, and

stability of the trade itself, and the expected further development of the trade. He realizes that ships regularly employed in that trade must come first, that he must have a bit more space than actually needed to meet peak seasonal movements and business increases. When he goes in for this trade he must stay with it. His ships may not be economically fitted elsewhere.

The non-conference operator usually operates the tramp type of ship. If rates become unprofitably low, or if charter rates become too high, or if business elsewhere becomes better, he can with impunity withdraw for good or for a period. These things have happened and will happen again. Nothing need prevent non-conference owners from leaving commerce stranded if that suits them.

The American conference owner has a definite purpose. This purpose is mandatory and part of the obligation he accepted or accepts when he bought the ships or when he secured a building loan. This purpose is part of our national laws as embodied in the Merchant Marine Act of 1920 and

President McKinley, annual message 1899:

"Our national development will be one-sided and unsatisfactory so long as the remarkable growth of our inland industries remains unaccompanied by progress upon the seas. There is no lack of constitutional authority for legislation which shall give to this country maritime strength commensurate with its industrial achievements and with its rank among nations of the earth.... we must encourage our merchant marine, we must be under the American flag, built and manned and owned by Americans. They will not only be profitable in a commercial sense; they will be messengers of peace and amity wherever they go."

the Jones-White Act of 1928. This purpose is to build an American merchant marine suitable to serve the greater part of our commerce; to maintain a certain fixed minimum number of sailings on regular and definite schedule.

The non-conference operator of foreign tonnage can have no such national desire to build an American merchant marine. For selfish reasons, so long as he is in the trade, he undoubtedly hopes that business keeps up. But if and when he quits — what the heck!

The conference owner goes to a great deal of expense to build up a scientific tariff, the rates of which are open to all alike. No favoritism, no discrimination. The non-conference operator uses this tariff as an umbrella. Human nature being what it is, he has a tendency to give special low rates to big shippers. This may eventually build up a monopolistic trend for the big shipper to the exclusion of the small shipper, and incidentally do the same to the operator, provided ships are available. In other words, a non-conference operator is often purely an opportunist.

The conference operator, and particularly the American conference owner, cannot reduce his fleet or operation to the level of the cut-throat service. He cannot pull out of the service and later expect to return with any measure of success. Shippers and importers rely on his service, usually built up over a period of years. He must continue in order to keep the goodwill of his clientele. The American owner, as stated, has a definite commitment to our government, the general public, and the welfare of the country and its foreign commerce.

● **Maersk Line Methods**

Under a feature advertisement addressed to the public, through the medium of the New York Journal of Commerce, the Isbrandtsen-Moller Company, Inc., states among other things that the Isbrandtsen-Moller Company is a New York corporation. No one disputes that. The Moller part of the corporate name is represented by Mr. A. P. Moller, a very delightful Danish gentleman, in the very highest degree of the words delightful and gentleman. Mr. Moller is a very shrewd and extremely cap-

able Danish shipowner, shipbuilder and banker.

Mr. Hans Isbrandtsen, also a shrewd, capable Danish gentleman, is related to Mr. Moller. The fact remains that the Maersk Line (Maersk is a Moller family name) operates Danish flag ships, occasionally chartering or berthing other flag ships if and when needed. They carry American cargo, but not with American ships. No one denies them the right to do this. Other flag carriers are in the trade. Why should they not have the right to be in there too? It is a question, however, of regulation and stability. In this same advertisement they take occasion to hit the cost of "swimming pools" and question the need of ocean liners. This is a direct rap at American tonnage, inasmuch as only an American line is so equipped in the New York-Far East trade. A statement of this kind infers but does not prove that general cargo space in ocean liners is more expensive to the shippers than similar space in purely cargo liners. The fact is that each space is designed to carry its own burden. Passenger accommodations, be they moderate or luxurious, are determined upon the probable needs of the trade as experience dictates. Likewise cargo space in the same ocean liner, be that general cargo and/or special cargo, such as refrigeration, mail and bullion rooms, or deep tank space, is similarly determined. If the then stabilized rates and condition warrant the investment the ships are built. Conversely, they are not built. In the case of American ships, national aims and requirements have to be added to the above basic principles.

In the same advertisement Isbrandtsen-Moller aver that they are operating profitably at low rates because of careful planning, conservative methods and efficient operation. Let us examine that a bit. It is interesting because of the above dig at the American tonnage and the inference that the American operator is not so efficient, or conservative, and does not plan so carefully.

The new vessels of the Maersk Line are about 8050 tons deadweight and of about 15 knots speed. They are well equipped and modern in every respect. They are economical motor ships. Assuming the American owner builds an identical ship in an

TABLE D.
COSTS PER MONTH

| | American Ship | Danish Ship |
|---------------------------------|-----------------|--------------|
| Wages of Crew | \$2,687.00 | \$2,072.08 |
| Subsistence, Crew | 742.50 | 510.06 |
| Insurance, 2 per cent | 2,790.67 | 885.50 |
| Interest, 5 per cent | 6,976.67 | 2,213.75 |
| *Depreciation, 5 per cent. | 6,976.67 | 2,213.75 |
| Total per month | \$20,173.51 | \$7,895.14 |
| Handicap to American owner | per month | \$12,278.37 |
| Handicap to American owner | per year | \$147,339.94 |

American shipyard, here is how the initial costs would compare:

Estimated costs in American yard,
\$1,674,400.00.

Estimated costs in Danish yard,
\$531,300.00.

These figures are based upon bids at hand.

Now as to operating and capital costs:

Being identical ships in identical trades their fuel consumption and port costs would naturally be similar, so these are eliminated. Other comparative costs would be as per Table D.

Careful planning, efficiency and conservative efforts do not explain away this handicap.

The American owner does not ask monopolistic rates or conditions. He does not deny the right of competition to foreign lines. He does, however, maintain that the same rate should be open to all shippers alike; that rates should be based upon ability to move the cargo freely against competition of similar commodities from other markets, be they local or foreign. The past has proven that compensatory rates are available so long as unfair practices do not exist.

● Rationalizing Services

Naturally some strenuous efforts on behalf of foreign owners were made to rationalize services and/or arrange pool agreements. Space does not permit going into detail. If sailings were to be spaced rationally, both American and foreign companies who sail their ships on definite days of the week would have to alter their entire schedule and operation methods, and disrupt all services in practically every part of the globe.

Certain companies have two or more different fleets which join together to make a more frequent sailing schedule on one particular leg of their route or trade. This would certainly be disturbed.

Further, under the law, the American owners have contractual agreements which would have to be re-negotiated. Other owners may have mail or other contracts or business with frequency of sailings as a controlling feature. They would have very little chance of success in trying to re-negotiate such agreements, contracts and business just because some other owner wants to reduce sailings as a whole.

Non-conference lines asked for or demanded insurance equalization. Lines within the conference have insurance disability. Such disability has not been recognized by conference members. To recognize it now would open avenues of discontent and disruption in local and other conferences.

Non-conference lines demanded freedom of action with, first, immediate competition, and, second, with reference to contractual shippers. They wanted to maintain their contracts with big shippers at rates below conference rates, but the conference to charge other shippers of the same commodity full conference rates. This was rejected as being illegal, monopolistic and not to the best interest of the public at large,

*In my former article I used 3 per cent for depreciation. This was done to avoid criticism of unduly raising the difference between foreign built ships as compared to American built ships. Every steamship operator knows full well that 5 per cent should be the very minimum. Rapid improvements in boilers, propelling machinery, and other refinements outmode a ship in less than 20 years.

or to the commerce of the United States.

● Speed Differentials

Others, non-conference lines, wanted speed differentials. Let us see how that would work. In the New York-East Coast of South America trade they had a speed differential of about 6½ per cent in favor of the freight liner as distinguished from the combination freight and passenger liner. In that trade, however, there are circumstances not existent in the Atlantic and/or Pacific Far East trade. First, the ports are in geographical rotation; second, passenger and mail carriers receive preferential port treatment in Latin America. In congested ports this is of tremendous advantage. In the Far East trade certain ports, such as Manila and Shanghai, export, but more particularly, import more of the higher revenue cargo than other Far East ports. Hence we have comparatively slow freight ships making Manila and Shanghai direct, thereby reducing time in transit below faster ships making the Great Circle trip via Japan. This picture is graphically shown in Table E:

Other conferences, for instance the Europe-Far East conference, operate with various types of vessels of varying speed. They get along without any speed differentials. Let us see what that conference secretary has to say under date of: London, June 12, 1934— "The service is regular, with sailings several times a week from the principal ports. There is considerable variation in the speed of the vessels engaged. There are ships of all speeds from say 12 knots to that of the fastest mail and passenger vessels. All lines are bound to quote the same rates. No lines may quote lower by reason of slower speed or anything else."

Some of the operators, both within and without the Atlantic-Far East conference, are also members of the Europe-Far East conference. If a speed differential was permitted here it would undoubtedly force an issue there also. There is more logic in speed differentials from Europe, particularly if ships traverse the Suez Canal, because of the then geographical rotation of ports in the Far East.

Pooling of freights has not worked well in other ports, witness the inter-coastal chaos, and would be most

TABLE E

Days in Transit from Atlantic Coast to

| | Yokohama | Kobe | Shanghai | Hongkong | Manila |
|----------------------|----------|------|----------|----------|--------|
| British line | — | — | 58 | 53 | 48 |
| British line | — | — | 53 | 47 | 41 |
| British line | — | — | 47 | — | 40 |
| Norwegian Line | — | — | 45 | — | 38 |
| British line | 62 | — | 52 | 46 | 43 |
| American line | 39 | 40 | 43 | 46 | 49 |
| American line | — | 42 | 46 | 50 | 53 |
| American line | — | — | — | 46 | 52 |
| Japanese line | 57 | 65 | — | — | — |
| Danish line | 44 | 47 | 54 | 51 | 61 |
| Japanese line | 61 | 63 | — | — | — |
| Japanese line | 32 | 39 | — | — | — |
| Japanese line | 36 | 43 | — | — | — |
| British line | 41 | 44 | 49 | 53 | 55 |
| British line | — | — | 44 | 48 | 37 |
| American line | — | — | 52 | 49 | 45 |
| British line | 44 | 46 | 50 | 55 | 58 |
| British line | — | — | 44 | 47 | 36 |

It would be a hopeless task to go into this picture on a speed per ship basis.

From the Pacific we have a picture just as difficult as shown in Table F.

TABLE F.

Days in Transit from Pacific Coast to

| | Yokohama | Kobe | Shanghai | Hongkong | Manila |
|----------------------|----------|------|----------|----------|--------|
| American line | 13 | 14 | 17 | 20 | 23 |
| British line | — | — | 32 | 28 | 23 |
| British line | — | — | 30 | 26 | 21 |
| Norwegian line | — | — | 27 | — | 21 |
| British line | 36 | 33 | 28 | 24 | 20 |
| British line | 15 | 18 | 23 | 29 | — |
| British line | 12 | 13 | 16 | 19 | 21 |
| American line | — | 20 | 24 | 28 | 31 |
| American line | 17 | 18 | 21 | 24 | 27 |
| American line | 14 | 15 | 17 | 20 | 22 |
| Japanese line | 16 | 24 | — | — | — |
| Japanese line | 16 | 18 | — | — | — |
| Norwegian line | — | — | 24 | 33 | — |
| Danish line | — | — | 26 | 37 | 43 |
| Danish line | 20 | 27 | 31 | 34 | 38 |
| Japanese line | 14 | 16 | 19 | 22 | — |
| Japanese line | 13 | 16 | — | — | — |
| American line | 21 | 24 | 30 | 35 | 52 |
| Japanese line | 16 | 18 | 27 | — | — |
| Japanese line | 16 | 20 | — | — | — |
| Dutch line | — | — | — | — | 23 |
| British line | — | — | 26 | 30 | 20 |
| American line | 16 | 17 | 20 | 24 | 29 |
| American line | 21 | 27 | — | 35 | 40 |
| American line | — | — | 23 | — | — |
| American line | 20 | 25 | 28 | 34 | 38 |
| Japanese line | 16 | 25 | — | — | — |

difficult here on account of various number of sailings of the different lines, port rotation, types of ships and equipment, the inclusion or exclusion of refrigerated cargo, mail, deep tank, bullion or other specialty cargo earnings. Bulk cargoes would

also be involved. Here, again, the spectre of having to do similarly, or face disruption, would face owners who are members of other conferences in the same trade, say, from Europe to the Far East.

Rightly or wrongly, many Ameri-

can owners look upon any rationalization or pooling schemes proposed as a definite and deliberate trap to limit the American Merchant Marine expansion, and as inimical to the aims expressed by Congress.

● Stability Stimulates Business

It has been stated that competition and lower rates stimulate business. Investigations previously held, and direct testimony at recent hearings held at San Francisco and New Orleans and New York on Section 19, Merchant Marine Act 1920, conclusively proved that shippers almost universally consider cut-throat competition and instability of rates tend to and do demoralize business. This is also the view of experts. While the figures of a single port are not conclusive proof, and space does not permit additional figures, Table G may give an indication that, although

TABLE G.

| | 1930 | 1933 |
|----------------------------------|----------------|--------------|
| Los Angeles to China | 558,907 tons | 244,476 tons |
| Los Angeles to Hongkong | 124,025 tons | 102,627 tons |
| Los Angeles to Japan | 1,338,334 tons | 872,978 tons |
| Los Angeles to Manchuria | 32,263 tons | 11,863 tons |
| Los Angeles to Philippines | 271,990 tons | 297,133 tons |

The latter increase is due to increase in bulk oil from 247,893 to 271,362 tons.

cut rate competition was in full swing, business was not stimulated.

The witnesses whose testimony is reproduced herewith represented firms of high standing and heavy tonnage movements. They, if any, would secure the lowest possible quotations to the detriment of the smaller shipper in the trade, yet they prefer stability to lower and constantly fluctuating rates. Numerous other witnesses could be quoted, all to the same trend. Only a very few shippers stood for rugged individualism and even they admitted stability in rates is preferable to wholesale destruction of the rate structure.

Professor Lewis H. Haney, Economics, University of New York, in part says: "It is one of the most significant facts in transportation history that ocean line conferences are gaining in strength and public recognition. There has been a fairly extraordinary progress in type of ship and service during the period when rate agreements and conferences were prevalent. The power to survive and grow constitutes prima-facie evidence of the need of conferences and provides strong arguments in favor of the general conclusion that as they developed they have met a real need.

"Competition in rates is practically impossible as a constructive and enduring force. It is under rate competition that we find the greatest and most harmful forms of discrimination. I think that conference agreements tend toward better service for the same money. Stabilization of rates tends to more frequent service, fixed sailing dates, better and speedier vessels. The advantages to shippers are:

1. Reduction in storage charges.
2. Reduced interest charges.
3. Reduced insurance charges.
4. Reduced business risks.
5. Increased opportunity for trade

in that it opens up, facilitates and encourages business in new and remote markets.

6. Increased opportunity to compete with other or foreign competitors.

7. Same rates to all alike.

"The advantages to the shipowners are:

1. Permits planning ahead for new ships and equipment.

2. Permits reasonable confidence in future expansion and profitable development in new ships and needed requirements, such as speed, more frequent sailings, passenger accommodations, refrigeration facilities, bulk oil compartments, strong rooms for bullion, mail rooms.

3. Permits research and statistical and trade development departments."

There are many other excellent observations on this topic, but the above will suffice.

Why has not something been done about the destructive competition by conference members who are the great majority of the trade? Some things have been done. But as one ship operator has stated: "It is beyond the brains of shipping men to cure." That this situation is serious, very serious, can readily be seen when for the first time in history foreign owned lines, members of the conferences, join the American lines in petitioning the Shipping Board Bureau for regulation against unfair, ruinous, discriminatory practices. Secret rebates deservedly have been banned by law. Fighting ships have also been banned by law. Where fighting ships are used an owner or association or conference member places a ship on the berth directly previous to or simultaneous with a cut rate competitor and quotes any rate necessary to get the business away from such competitor. Where a non-conference line goes after the business and quotes any rate to get

Excerpts of testimony from recent hearings at San Francisco, New Orleans, and New York:

Witness:

"Reasonable, stable, conference rates are essential to our business. Business cannot be extended without it. Cut rate competition is harmful. Constantly fluctuating rates prevent stability in c.i.f. prices. Business is retarded. It serves no good purpose at all."

Witness:

"We do not use non-conference competition. We require stability to sell, say, one year in advance. Complete stability far more preferable than cut rates. Competitor has same rate. No chiseling."

Witness:

"We prefer frequent, regular, dependable service, hence ship on conference ships. Orient is a pocket market. If market flooded we lose and our customers also lose."

Witness:

"Even in view of world market and depression we would have no trouble shipping at \$14.00 rate. The \$5.00 rate does not stimulate business. Need stability of rate."

Witness:

"Cannors consider stability so necessary that they eliminate cut rate lines entirely. This present world condition does not necessarily require cut rates. Instability is entirely caused by cut rate competition. Cannors want stability of rates and all to be on parity."

the business, that competitor is using a form of fighting ship, the only difference being that in the first instance it is a deliberate attempt at driving the competitor out of the market, while the second method is to get the business at any cost. It is rather a fine distinction, particularly as the lines petitioning the government are generally stating, as one line does: "Non-conference lines tear down rates to a point where profitable operation is impossible."

This tearing down policy of cut-throat competition has now gone on for years. It has come to a point where it threatens the whole structure of transportation and more particularly the aims of the American merchant marine. In fact, one counsel goes so far as to suggest revocation of the law prohibiting the use of deferred rebates.

● Deferred Rebate Policy

These deferred rebates are permitted in practically every route not touching the United States of America shores directly. We can best illustrate the operation of the deferred rebate system by quoting from a European-Far East circular, which in part states: "To those merchants who from April 1st to June 30th, 1934, may have found it to their interest to confine their support and shipments, and who refrain from participating directly or indirectly in shipments by outsiders, and who do not effect under their name shipments of others who may not be entitled to rebate, during that period, to vessels belonging to (line's name) we shall be happy to allow a rebate of 5 per cent on the freights paid. To those who, on December 31, 1934, may have found it to their interest so to confine their support and shipments, etc., as above, during the whole nine months to the said vessels, we will allow a further 5 per cent on freights paid up to June 30th, 1934. To those who, on December 31, 1934, may have found it to their interest to confine their support and shipment, etc., as above, during the preceding six months to the said vessels, we will allow a rebate of 5 per cent on the freights paid. To those who, on June 30th, 1935, may have found it to their interest so to confine their support and shipments, etc., as above, during the previous twelve months, to the said

President Theodore Roosevelt said:

"To the spread of our trade in peace and the defense of our flag in war, a great and prosperous merchant marine is indispensable. We should have ships of our own and seamen of our own to convey goods to neutral markets, and in case of need, to reinforce our battle line."

vessels, we will allow an additional 5 per cent on freights paid during the six months ending December 31st, 1934." In other words, a total of 10 per cent, but 5 per cent always held back six months.

This is an iron clad contract and very effectively shuts out any non-conference cut rate business.

● Contract System Policy

Both the Atlantic Far East and the Pacific Westbound conferences in augmented a contract system. A shipper signed to ship freight by the vessels belonging to conference lines. The contract rate in accordance with commodity classification is assessed for all contract shippers alike. The non-contract rate is approximately ten per cent higher and is quoted all non-contract shippers alike. Published tariffs are filed with the Shipping Board Bureau, are open for inspection at conference

President Wilson, in his annual message to Congress, 1915, stated:

"We can develop no true or effective American policy without ships of our own—not ships of war, but ships of peace, carrying goods and carrying much more: creating friendship and rendering indispensable service to all interests on this side of the water."

In his annual message 1914, President Wilson said:

"How are we to build up a great trade if we have not the certain and constant means of transportation upon which all profitable and useful commerce depends? And how are we to get the ships if we wait for the trade to develop without them? The government must open these gates of trade, and open them wide, open them before it is altogether profitable to open them, or altogether reasonable to ask private capital to open them."

headquarters and at offices of member lines. There is no discrimination.

This system is quite satisfactory to shippers and owners alike, but pernicious competition forced a fall clause in contracts, in order that contract shippers could compete with non-contract shippers using cut-throat competition. Hence the universal request by conference members for relief from an intolerable situation by an early and drastic action of the Shipping Board Bureau, Department of Commerce, which, under the laws of 1916 and 1920 it is contended, has ample power to regulate tariff schedules.

This, in short, is what is prayed for: Every common carrier by water in foreign commerce through its owner, operator, agent or master, to file with the Shipping Board Bureau, Department of Commerce, a tariff and all charges for transportation of goods between ports of trade specified. All rates and charges in such tariff to be just and reasonable as between ships and carriers and as concerns competing carriers. No common carrier not a member of the conference in trade specified to reduce any of its rates or charges below levels of approved conference tariff currently maintained without furnishing the board and all carriers 30 days notice in writing of intention to reduce such rates and charges. The board to have power to cancel on five days notice any rate or charge which it finds to be either unduly high or unduly low, or non-compensatory, or unduly competitive, and/or operating to the detriment of the American merchant marine, or of the commerce of the United States. The Board to have power to suspend rates or charges pending hearing and until the Board has determined its ruling. All common carriers to be prohibited from unjust discrimination by: rebates, false adjustment of claims, false classification, false weights or measurements, absorptions, freight brokerage in excess of that established by conference, or free transportation of persons or goods. The conference to file, on behalf of members, with the Board, a tariff of all rates and charges, together with rules and regulations, and names of members. Within ten days of application the conference secretary to furnish any

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Coast Guard Cutter Onondaga

*Fine New Steel Turbiner to be Stationed at Astoria, Oregon, for Service
Along the Northern Pacific Coast Including Alaska*

Delivered by her builders, the De-foe Boat and Motor Works of Bay City, Michigan, on September 11, and commissioned by the U. S. Coast Guard on September 15, the Coast Guard Cutter Onondaga is the latest addition to the large and growing fleet maintained by Uncle Sam's Treasury Department on the Pacific Coast. Two years ago this shipbuilding firm delivered to the Coast Guard an identical ship, the Escanaba, first of this class of cutters designed especially for winter service in Northern waters. The Tahoma, a third sister, was delivered during October. All of these steamers are propelled by De Laval Turbines.

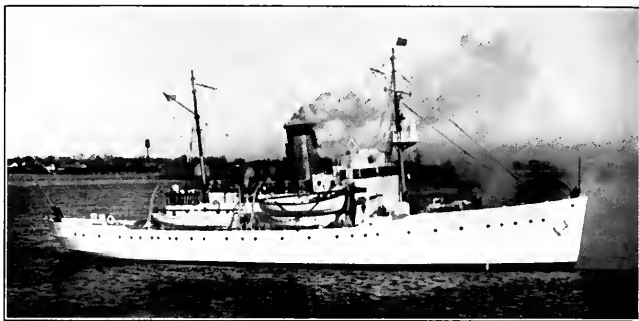
The cost of S.S. Onondaga was \$563,800. Her entire hull construction is much heavier than in an ordinary commercial vessel of comparable size.

Her bow and forefoot are so molded and built as to make her almost in the class of ice-breaker. Water line strakes forward are 1-inch steel plates brought down well under the forefoot. A large trimming tank forward is fitted with large capacity piping and pumps, so that it can be quickly emptied for running the bow up on the edge of the ice and then quickly filled to break down that ice. She is classed by Coast Guard rules as a Rescue Cutter, ice crushing.

Her principal dimensions are:

| | |
|-----------------|--------------|
| Length overall | 165 feet |
| Length B.P. | 150 feet |
| Beam molded | 21 feet |
| Depth | 21 feet |
| Draft | 13 feet |
| Displacement | 1000 tons |
| Bunker capacity | 42,000 gals. |
| Speed | 13 knots |

On this class of cutter for winter service the entire length of the main deck and all of the living quarters are fitted with two-inch Armstrong cork board insulation fastened directly to the steel with waterproof cement.



Coast Guard Cutter S.S. Onondaga.

● Propulsion Machinery

S. S. Onondaga has a modern, fairly high pressure, steam propulsion power plant. Steam at 340 pounds drum pressure and 200 degrees of superheat is generated in two Babcock and Wilcox water tube boilers of the latest marine inter-deck superheater type. Tubes are 2 inches in diameter, and each boiler has 2463 square feet of heating surface, and 222 square feet of superheating surface. Navy bunker fuel oil is used.

The propulsion engine is a De Laval turbine with a normal rating of 1500 shaft horsepower at 7500 revolutions a minute, when supplied with steam at 300 pounds pressure and 650 degrees Fahrenheit total temperature, and when exhaust is maintained at 27½ inches vacuum by the C. H. Wheeler condenser.

This turbine drives the single propeller shaft through double reduction gearing at 140 revolutions a minute. Line shafting 9 inches diameter, and propeller shaft 9¾ inches diameter are products of the Titusville Forge Company. The propeller shaft is carried in Goodrich Cutless Rubber bearings at both ends of

stem tube. F. Ferguson and Sons supplied the 10-ft. 8-in. diameter, 4-bladed, solid manganese bronze propeller, which is of 10 foot, 3 inch pitch, with a projected area of 35.25 square feet and a developed area of 39.89 square feet.

This plant on standardization trials proved its fine maneuvering qualities by going from full speed (145 rev.) ahead to full speed (145 rev.) astern in 67 seconds.

Since these cutters have considerably more boiler capacity than is needed, and the plant was designed primarily with ruggedness and reliability rather than with fuel economy in view, it is not to be expected that these cutters will show any great records for low fuel consumption. On the standardization trials, the fuel consumption per brake horsepower hour at 140 revolutions of the propeller was approximately one pound.

For lighting and auxiliary power, two DeLaval steam-turbine-driven 35-kilowatt electric generators are installed. These auxiliary turbines exhaust into an auxiliary condenser of the C. H. Wheeler make.

Reciprocating feed pumps for the

main steam boilers were supplied by the Warren Steam Pump Company. All other pumps are by the De Laval Steam Turbine Company. These include: one turbine drive propeller type main circulating pump; one electric drive centrifugal auxiliary circulating pump; two electric drive main condensate pumps; one electric drive auxiliary condensate pump; one turbine drive fire pump; two electric drive lubricating oil pumps; one electric drive bilge pump; and one electric drive sanitary pump.

The pump equipment of Cutters Onondaga and Tahoma differs from that of their sister Escanaba in that the Coast Guard engineers have taken advantage of the very recent developments in pumps and introduced a number of the new De Laval-IMO turbine and motor-driven pumps wherever the service indicated the advisability of using that type. Each of these ships has a De Laval-IMO turbine-driven main fuel oil pump, and a motor-driven De Laval-IMO auxiliary fuel oil pump; while instead of the centrifugal pumps for circulating lubricating oil, as used on the Escanaba, the two later vessels have each two motor driven De Laval-IMO lubricating oil pumps. There is also on each vessel a De Laval-IMO pump built into and driven by the main propelling unit to provide lubrication for the main unit when under way. The De Laval-IMO fuel oil pump has a capacity of 5 gallons per minute against 300-pound pres-

sure and is driven by a De Laval velocity stage turbine. The auxiliary De Laval-IMO fuel oil pump driven by an electric motor has a capacity of 3 gallons per minute against 300-pound pressure.

The lubricating oil pumps are mounted vertically with a special mounting piece, the upper flange of which is at floor plate level, and above this upper flange is located an electric motor. These main lubricating oil pumps each have a capacity of 80 gallons per minute against 35-pound pressure.

In connection with the fire mains a steam injector is fitted to supply hot water for melting ice on deck.

All heat auxiliary transfer equipment was supplied by the Davis Engineering Company and includes one feed water heater, two fuel oil heaters, one evaporator and one distiller, all of the famous Paracoil type.

Compressed air is supplied by a steam driven compressor built by the Westinghouse Traction Brake Company. Forced draft and machinery space ventilation is provided by blowers and fans built by the Clarence Fan Company.

Electric motors for practically all underdock auxiliaries were supplied by the Star Electric Motor Company, and the magnetic contactor controls for these motors are by Cutler-Ham-

A De Laval oil purifier assures clean pure lubricant for the turbines and all machinery.

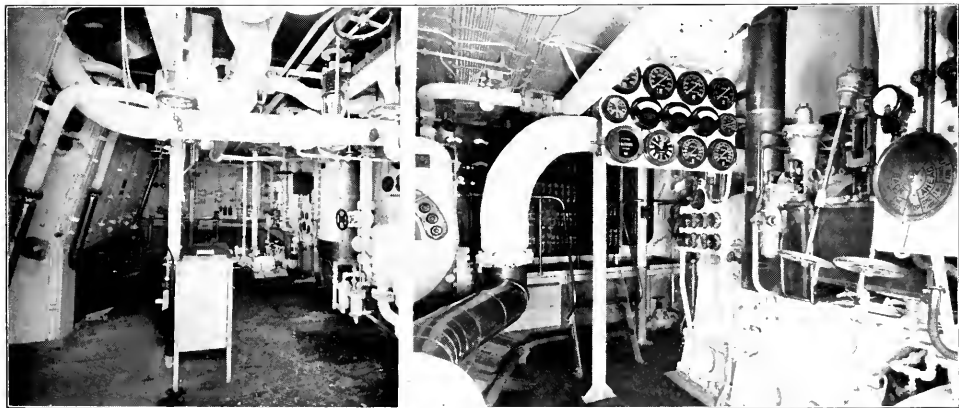
● Deck Auxiliaries and Navigating Equipment

Lidgerwood supplied the deck auxiliaries, including one electric windlass, one electro-hydraulic steering gear, and one electro-steam towing engine. Electric motors for these machines are by the Electro Dynamic Company, and controls by Cutler-Hammer. The steering gear is of the four ram type, with Waterbury hydraulic pump. The towing engine is housed in the after end of the deckhouse enclosure, and through clutches and gearing drives two warping gypsy heads—one at each side of the house. This steering engine has a drum capacity for 1500 feet of 1½-inch steel towing hawser, and exerts a minimum rope pull of 25,000 pounds at a speed of 80 feet per minute.

Onondaga's navigating equipment is very complete. Kearfott Engineering Company pilot house windows are fitted and Kent-Cory clear vision screens. Henschel engine room telegraphs and rudder indicators are fitted. Compass equipment includes two standard navy compensating magnetic binnacles, a Sperry master gyroscope and six repeaters, and a Coast Guard radio compass direction finder. The latest type Fathometer was supplied by the Submarine Signal Corporation. An electric driven sounding machine was installed by the A. Lietz Company of San Francisco.

Other interesting items of equipment are: Kelvinator refrigerating

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Fire room at left and engine room at right featuring Babcock and Wilcox boilers and De Laval main propulsion turbines.

American Flag Ships Building Pacific Coast-South America Trade

By Chas. L. Wheeler

Vice President and General Manager, McCormick Steamship Co.

Those who believe that the romance of the sea passed with the last sailing vessel, that the glamour of the clipper and full-rigged ship belong to an age that has passed, fail to take account of the record of achievement of some modern shipping organizations. Such achievements often contain many of the elements and much of the flavor of the exploits of the self-propelled vessel's predecessor.

Foreign trade similarly is lost in the perspective of history. Marco Polo, Columbus, and other pioneers in this field receive highly deserved praise. It is entirely proper that history has chosen to bestow its laurels on these intrepid adventurers, and all we ask is that the glamour of the past does not completely obscure from our view contemporary activities in the field of foreign trade development. Modern freighters now operating in regular liner service carry on each sailing as much cargo as Columbus could have transported in his whole fleet throughout its entire life.

We could use several trade routes that have been established recently to exemplify this point, but none more fitting than the exchange of

commerce between the Pacific Coast of the United States and the East Coast of South America fostered by the Pacific Argentine Brazil Line.

Established shortly after the end of the World War by the United States Shipping Board the development of this trade route has been one of the outstanding developments of American shipping in recent years. Much praise is due the Shipping Board on the wisdom of this choice, for this route not only created a use for a part of our tremendous war built merchant tonnage, but has proven itself vital to the development of foreign commerce between the Americas.

Prior to the creation of this service the small trade that did exist between these sections of the Western Hemisphere was carried by foreign tramp vessels which were, of course, entirely withdrawn with the advent of hostilities in Europe. The Shipping Board, eager to ensure the proper development of this promising trade route, offered it for sale to private interests, and it was accordingly purchased by the McCormick Steamship Company in 1926.

Prior to the sale of this fleet by the Shipping Board, this route had

been operated without competition; but immediately after its acquisition by private interests, it was faced with competition from a foreign line. The natural result was a decrease in revenue. The purchase contract stipulated that the vessels had to be operated exclusively in the P.A.B. Line service for a period of at least five years, also, the number of annual sailings to be made; failure of which would mean default of the Performance Bond. The inevitable result caused by the material disparity between the cost of operating an American-manned ship and a foreign vessel was a substantial deficit for the first two years the line was under private ownership.

Recognizing this condition to exist in every trade route in which American vessels were in competition with foreign lines, Congress passed the Jones White Act in 1928; and in 1929 the P.A.B. Line bid for and was awarded a mail contract for this route. To live up to the spirit and intent of the Act, it was agreed to increase the frequency of sailings, which necessitated the purchase of three additional vessels at a cost of \$188,038; and to make certain improvements on the entire fleet, which alterations alone cost nearly one-quarter of a million dollars.

The McCormick Steamship Company proceeded to devote a great deal of money and time in developing the markets discovered by the founder of the route, the United States Shipping Board, and in pioneering new fields and new products along the 18,000 miles that the P.A.B. Line served.

This company maintains offices and agencies throughout Argentina, Brazil, Uruguay, and Colombia as well as in the West Indies and Cen-



S.S. West Ira loading on Pacific Coast.

tral America, all of which are prepared to assist importers and exporters in developing the movement of new commodities and the expansion of present markets. Additional agents are being constantly appointed, coincident with the growth of business and greater development of trade.

All the company's facilities, both at home and abroad, are placed at the disposal of anyone interested in trading with these countries and the many successful banking and commercial connections that have been made are most encouraging.

Representatives from the company's general office are constantly traveling throughout the vast territory served by the P.A.B. Line engaged in trade pioneering and in helping to correlate the developmental activities of the numerous offices and agencies. In building this commerce, every effort has been made to have it grow into a balanced trade—one in which the reciprocal exchange of goods and services between North and South America tend to equal one another. To assure a properly balanced development in the future, the company is now completing a trade survey of all the countries served by its vessels.

Further efforts to pioneer this trade have taken the form of steadily improving the service. Anticipating the demand for more frequent sailings the P.A.B. Line has increased its sailings from one every forty days to one every fifteen. Expenditures for improvements mentioned above were made to increase the speed of the vessels, to equip four ships with refrigerator space, and to install passenger accommodations.

The result of these efforts have



S.S. West Ivis transiting Panama Canal.

been obvious from the start and are indicated by the following figures. Exports of lumber to the Argentine grew from 20,000,000 feet in 1925 to 95,000,000 feet in 1929. The same is true of dried fruit, canned goods, fresh fruit, and other Pacific Coast products. Because of depressed agricultural prices which resulted in exchange restrictions, in most South American countries, our exports fell off considerably until 1933 when a revival started.

Trade with Argentina for the United States as a whole has already shown the following increase:— Exports in 1933 were 18 per cent greater than in 1932, while in the first five months of the current year our exports were 33 per cent in excess of the corresponding period of 1933. Imports from Argentine showed a 114 per cent increase in 1933 over 1932; and in the first five months of 1934 they were 159 per cent greater than in same period in 1933.

During the slump every effort was made to protect the agricultural and manufacturing interests of the Pacific Coast and new markets have been cultivated in Trinidad, Barbados, Puerto Rico and other ports in the Caribbean which helped tremendously during the slack period and show great promise for the future.

Coffee has been the most spectacular of the import commodities increasing from 28,282 bags valued at \$323,000 in 1920 to 528,031 bags worth \$7,920,000 in 1933. Great development of the coffee roasting business along the Pacific Coast has resulted and today there are over 100 concerns on the coast exclusively engaged in roasting and dealing in coffee.

The transportation of cocoa beans direct from Bahia is an entirely new movement, and there are over nine chocolate plants on the Pacific Coast dependent on this movement.

Bones from the Argentine which run about 18,000 tons a year are used by the fertilizer and glue industries, the latter being an entirely new industry on this coast. This movement likewise has been built up because of the fact that a regular service from the East Coast of South America to the Pacific Coast of the United States is being maintained.

Insofar as there are no South American merchantmen in this trade the entire future development like that in the past must be carried on by U. S. flag ships. The competing foreign services have made no comparable effort in promoting



S.S. West Mahwah discharging at Buenos Aires.

trade, but have benefited from the activities of the P.A.B. Line. Of course, it would have been completely impossible to compete with ships whose operating costs because of lower wages are approximately fifty per cent lower than ours, much less to conduct these promotional activities without a government subvention which is received in the form of a mail contract.

Since the inauguration of the P. A.B. Line total trade between Argentina, Uruguay, Brazil and the Paci-

fic Coast of the United States (not including cargo carried in tankers) has amounted to over \$175,000,000. Even in 1932, the worst year of the depression on this route, exports to these countries were still 100 per cent greater than in 1923. The encouraging revival that this trade is showing leads us to believe that with the return of normal conditions there is every reason to expect that the substantial volume of business done in the years 1927 to 1929 will not only be equalled but exceeded.

Care of Ships Radio Room Clocks

A clock is an exceedingly delicate instrument that deserves the most careful care at all times. This is particularly true of the "Sweep-Second Hand" clocks with which a number of our radio rooms are equipped. Recently, a number of radio room clocks have been sent ashore for repairs and adjustment, and as the reports of the repairing agency show that in every case these clocks were damaged through mistreatment, we feel that the following instructions are necessary in order that subsequent repairs to this equipment will be eliminated.

In general, a clock, in order to give the best results, should be wound at the same hour each day and exactly the same amount of spring used. This is especially important if an even rate is to be maintained. In addition, it should be appreciated that a clock is not a portable instrument, and when once mounted in a satisfactory location should not be disturbed nor moved from place to place.

A satisfactory location is one where the clock may be hung vertically, as they are designed to operate in this position, and one that will be as free from engine vibrations as possible. Magnetic or electrical fields should be avoided and the location should be clean and free from dust, as well as protected from sudden or extreme temperature changes.

When all these requirements are met a good clock should give years of accurate service and setting should be reduced to a minimum.

The time of standard meridians, depending upon the location or trade of the vessel, is maintained in the radio rooms, and this in turn reduces the setting of the clocks, a very desirable feature as it is, in setting, that the greatest damage is known to be done. This is especially true with the "Sweep-Second Hand" clocks, for these are now being found with the hands badly distorted.

Very few modern clocks are set with a key. Such an arrangement was once common, but it has been found that it is quite as satisfactory to set the hands directly. Never touch the second hand; and be extremely careful with the adjustment between the hour and minute hands, by making the setting with the minute hand only, the hour hand following in its controlled ratio.

Do not set any clock oftener than is absolutely necessary, for the pressure of the pivot and the strain on the time train may seriously affect the rate. However, when it is necessary, setting the hands forward should be done slowly and steadily from a point about half-way between the pivot and the end of the minute hand. A greater radius than this may result in bending the hand, which is made very light, particularly at its

extremity, thereby disturbing the adjustment between the hour and the minute hands.

It is usually believed that a clock should not be set back, but this belief has now been proved erroneous, as it is harder on the works to set the hands ahead, for example, approximately ten hours than it would be if they were retarded for two. On the other hand, if a clock is set back it should be given: First, a slight forward movement, followed by a turn backwards, setting it back slightly more than the required amount, and finishing with an even and slow forward movement to the time desired.

The second hand is directly connected to the escapement mechanism and not through the time train, as is the case of the hour and minute hands, so that no provision is made for setting this hand without damage to the works except by stopping the clock. To push or hold back the second hand with the finger, for example, is to practically "murder" the clock.

Accurate time in the radio room is extremely important, and it is believed that by following the suggestions above, many of the difficulties experienced in the past will be eliminated as well as inexcusable damage to the clocks avoided.

—Bulletin, Standard Shipping Co.

U. S. C. G. S. S. Onondaga

(Continued from Page 333)

machinery; Brown pyrometers on steam piping and stack uptakes; consolidated Ashcroft-Hancock gauges; Ingle fuel oil burning galley range by the Ingle Manufacturing Company of San Diego, California; plumbing by Crane; and masts and booms by the Portland Spar Company, Portland, Oregon.

S.S. Onondaga will be a great source of security to vessel owners whose fleets ply the coastwise waters of Oregon, Washington, British Columbia, and Alaska, and she will enable the men of the Coast Guard service to keep their wintry vigil on these northern waters in comparative comfort and safety.

Foreign Competitive Practices

(Continued from Page 331)

owner, operator, agent or master with a copy of the tariff on file with the Shipping Board Bureau. All common carriers to have copies of rates and charges on file and open to inspection at their principal offices in the United States, including ports from which they operate. All members of any conference to be prohibited from using their voting power in adjusting rates, rules and regulations within any local conference to settle disputes between them and some other member arising out of any other trade route. Any rationalization scheme or pooling plan requiring the limitation of American tonnage and/or reduction in sailings of American vessels in American trade routes to be prohibited as inimical to the purpose and policy of the United States as expressed in Section 1 of the Merchant Marine Act of 1920. Violations of the above to be punishable by suitable penalty in accordance with power now within the board, or to be set up by legislation.

Surely, when we take into consideration our national needs, our aims as expressed by law, the prevailing conditions now causing havoc and threatening the whole American shipping structure, the above requirements are not unreasonable or unfair. Please also note that foreign lines within the conferences, which lines are in the majority on both coasts, also join in this plea; at least so far as stabilization of rates, rules and regulations are concerned.

The tramp vessel, in its precise term, will not be concerned in this, except so far as filling up of any unused space left by bulk cargo is concerned. In this case established rates, charges, rules and regulations would have to be observed. The tramp, carrying full cargoes under charter from one shipper and/or under one affreightment has its economical uses. Both the tramps and the liners have their respective and legitimate fields. These fields should be left and preserved to them respectively. Neither should be permitted to encroach upon the other. The tramp and its freedom of action in the full cargo of bulk products field is not concerned in this plea for reg-

TESTIMONY AT RECENT RATE HEARINGS

Witness:

"Rates stabilized by conference eliminates discrimination. Shippers prefer a little higher rate based upon stability rather than low rates during a rate war."

Witness:

"The measure of the rate is not as important as stability."

Witness:

"We must have service, responsibility, stability, definite time of arrival, such as conference lines provide."

Witness:

"We sell c.i.f. and use conference lines. One customer forced f.a.s. sale and instructed ship on low rate non-conference line. Customer took one shipment and cable resume conference line shipments. Service furnished by non-conference line insufficient to maintain complete stock."

ulation. The plea is to regulate and stabilize; to preserve and develop American commerce in foreign trade. There is no attempt to throttle any competition. I have pointed out that the majority of members of conferences joining in this plea are foreign owners. American owners must not be driven out of any trade vital to America. No foreign policy making it prohibitive for American owners to extend established trades and develop new trades between American and foreign ports can be tolerated. The American flag policy is mandated. It must be so interpreted.

We should remember that our vessels are almost exclusively confined to our own business, of which we carry only about thirty per cent. We originate more world wide general commerce than any other nation. If we should reserve all our trade to American flag ships we would have a fleet greater than any now extant. If we should force American passenger travel to American ships the above statement would be mild indeed. In the trans-Atlantic trade, Americans constitute 70 per cent of all passengers. Americans pay 85 per cent of all fares and occupy 95

per cent of all first class cabins. We presently give more than two thirds of our cargo to foreign ships and about three quarters of our passengers to foreign ships.

How does that square with our avowed policy? Read what our various Democratic and Republican presidents alike think about our American merchant marine in the boxed quotations.

Nearly one hundred and fifty years ago George Washington saw and spoke of conditions then existent. His words are a hundred fold more applicable today. National aid is necessary to develop a merchant marine. This is most particularly true of the merchant marine of our flag. An American flag service is essential to American producers and manufacturers exporting to foreign markets. Stability of rates and charges are essential to shipowners and merchants alike. Congress has translated public demand into law. The law provides for establishment of an adequate and suitable merchant marine to carry the greater part of our commerce, undoubtedly contemplating passengers as well, and means to accomplish this have been set up. We have regulatory bodies, and shipping as a whole petitions for the application of the power invested within these regulatory bodies.

We have seen that immense national aid is an established and regular practice of most of our competing foreign nations, whose nationals have immediate advantages which American owners have no access to and in most cases do not want as these advantages, such as labor, working and living conditions, would be retrogressive and not to the best interest of the great American public.

It is an incontrovertible and fundamental fact that today, more than ever, the American merchant marine must be placed on a parity with foreign owned shipping in order to achieve the objective assigned it by law. Intelligent study, careful analysis and courageous action will soon eliminate the greatest problems of the American Mercantile Marine and will rebound to the benefit of American commerce and the American people. An early action is vital.

Radio at the

1934 America's Cup Races

To yachtsmen the international yacht races for the America's Cup were a matching of wits in making the most of a bit of sail and a breeze. But to the trained observers who followed the yachts it was an occasion of public interest that warranted the employment of every facility to get bulletins and reports to home offices in minutes, and even seconds.

Radio was present at the races in a variety of services. The diesel yacht *Norsaga*, especially chartered for the events by three of the subsidiaries of the Radio Corporation of America, was transformed into an extremely busy radio office, from which reports were flashed by dots and dashes to newspapers across the earth and by words to the NBC studios in the RCA Building, for transmission over the networks.

The multiplicity of radio antennae on the *Norsaga* indicated plenty of radio activity below decks. Wires were stretched fore and aft and athwart this trim 110-foot ship, to permit simultaneous operation of three transmitters and four receivers.

In the after cabin there were two short wave, 150-watt, marine radio-transmitters. Probably no

marine transmitters ever cleared traffic as quickly as these units, for they were connected to automatic, tape senders capable of operating up to 200 words a minute. The transmitters were equipped with master oscillators in order that the motion of the yacht—and there was plenty on some occasions—would not alter the frequency on which operation was being accomplished.

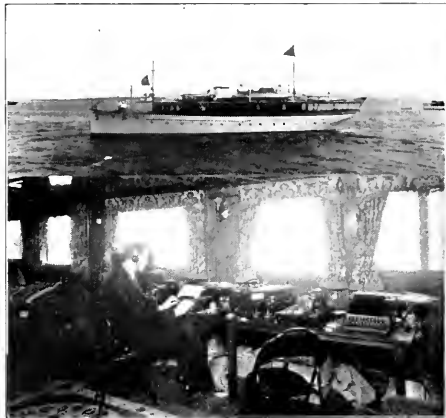
One transmitter was assigned to handle messages from the yacht to American addresses. These were received instantly in the RCA central office in New York City, after having passed automatically through the RCA receiving station at Riverhead, L.I. Through the second transmitter, signals destined for England automatically operated high power RCA transmitting stations at Rocky Point, Long Island, from their point of reception at Riverhead. The wireless operators on the yacht at sea were thus in direct control of the radio stations on land.

There were never less than five British correspondents on board the *Norsaga*, and, of course, a number of American press men, yet the rapid work of this group in writing descriptions of the colorful event and

filing them for immediate transmission did not tax the marine radio-telegraph facilities. It was something of an accomplishment that stock marine equipment was so readily adaptable to high speed keying, and also that the two transmitters, working only 20 kilocycles apart, with antennae on the same masts caused no interference.

Announcers and engineers of the National Broadcasting Company occupied the forward cabin, which was equipped with their special broadcasting gear. The words of the commentators were received by a mobile radio station on shore directly connected with the Company's studios in the RCA Building at Radio City, New York. Broadcasting stations at Bound Brook, N. J. and Schenectady, N. Y., which are part of the NBC national network, sent the programs by short wave to England and other countries.

On the *Norsaga* alone, NBC employed one shortwave transmitter, one shortwave receiver and one ultra-short receiver. The 50-watt short-wave transmitter was used to send the comments of announcers on the *Norsaga* to the mobile station on shore, and the shortwave receiver,



Diesel yacht *Norsaga* and some of the radio telegraph and broadcasting equipment installed to transmit news of the America's Cup Races.

operating on a different frequency, received the broadcasting "cues" from the same shore mobile station which passed the program on to the New York studios.

The ultra-shortwave receiver was employed to receive reports from the Committee Boat *Wilhelmina*, and when it was desired to have announcements from that vessel put on the broadcasting networks, an ultra-shortwave receiver was connected to the transmitter of the mobile unit. In some instances the committee boat was too far at sea for direct reception of ultra-shortwaves on shore, and on these occasions the signals were automatically relayed by short wave from the *Norsaga*. This is believed to be the first successful double radio relay of voice through marine facilities.

The occasion of the International Yacht Races signaled the thirty-

fifth anniversary of the first public demonstration of radio in the United States. In 1899, Guglielmo Marconi introduced his invention to America by reporting results of the races between the *Shamrock I* and the *Columbia*. To a nearby shore station he sent news dispatches from a yacht which he had then equipped with this apparatus, under the sponsorship of the *New York Herald*. With apparatus then in use, the speed of transmission was less than ten words a minute. In contrast, the *Norsaga* was in direct and instantaneous touch with London, 3,000 miles away, with a possible speed of transmission of 200 words a minute. Broadcasting was of course unknown thirty-five years ago, whereas those listening to this year's broadcast reports of the races numbered many millions on both sides of the Atlantic.

Fire Resistant Bulkheads for Ships

Whether or not Government legislation requires the use of fire proof materials throughout in ship construction, we believe it will be of interest to ship architects, builders, and operators to know that fire resistant panels are available and have been used on a number of ships.

The specifications prescribed by the Steamboat Inspection Service state that passenger ships must have fireproof bulkheads at definite points in the ship. There are, however, no specifications which require the use of fire resistant materials for bulkheads, furniture, or paneling in public spaces.

It is, of course, entirely possible to make a fireproof ship by using steel or metal construction throughout. This type of construction, however, is unattractive in appearance and moreover it provides no provision for sound or heat insulation.

For a number of years, the engineers of the *Haskelite Manufacturing Corporation* have worked on the development of fire resistant paneling for ships keeping in mind a panel which would combine fire resistance, beauty and utility. Three types of panels have been produced—Haskelite-Phemaloid fire resistant ply-

wood; Plymetl, a metal faced plywood, and *Haskelite Bonded Metal*.

Haskelite-Phemaloid is a resin glued plywood. Its fire resistance is due to an incombustible ply placed immediately under the face veneer which is, of course, very thin, nominally 1/28 inch. In actual tests conducted by the *Robert W. Hunt Laboratories*, this type of panel withstood a 5-inch bunsen flame for 90 minutes with a loss in weight of approximately 12 per cent. It is interesting to note that this type of panel is used throughout the public spaces and first class cabins on the *S.S. Washington*, largest and finest ship of its kind afloat. In the construction of this vessel a single panel, 7/8 inch thick was used for a bulkhead between cabins. This type of panel has proved entirely satisfactory from the standpoint of sound insulation. It is quickly erected and has an attractive appearance.

Another panel which has been widely used in ship construction because of its lightness, strength, and fire resistance is *Plymetl*. This type of panel is faced with a light weight steel sheet which is, of course, in-

combustible. *Plymetl* was used throughout on the *S.S. Bear Mountain* and on the *Export Liners, Escalibor*, and three sister ships. It was also used on the *U. S. Transport, President Grant*, during its last overhauling at *Mare Island Navy Yard*. *Plymetl* is particularly recommended for crew's quarters or wherever a painted surface is deemed satisfactory.

A special type of *Plymetl* was used on the *John J. Harvey*, a *New York fire boat*. In this instance, the steel faces of *Plymetl* were glued to an asbestos type panel which served as the core. This panel is absolutely fireproof.

A third type of panel, and probably the most important, is *Haskelite Bonded Metal*. It combines the structural strength and fire resistance of sheet steel with the decorative beauty of natural wood. A face veneer, not over 1/28 inch thick, is glued to sheet steel. Any type of fancy veneer face may be used and any gauge steel. It is practically as incombustible as the sheet steel itself. In other words, with this type of panel absolutely steel construction can be adhered to, and yet the soft tones and beauty of wood may be retained.

Book Review

INTRODUCTION OF THE IRON-CLAD WARSHIP. By *James Phinney Baxter*, 3rd. 400 pages (6 in. x 9 in.) with numerous illustrations, bound in light blue cloth, stamped with gold. Published by the *Harvard University Press*. Price \$5.00.

The popular conception of the history of ironclad, or armored, warships, begins with the *Monitor* and the *Merrimac* in the *American Civil War*. This book shows that the historic battle between these two vessels was in reality only the first modern demonstration of ironclads.

The idea of protecting war vessels with iron and other metals is very ancient. It was revived in Europe by the introduction of explosive shells, and at the outbreak of the *Civil War* over 100 such ships had been built or were then building in the shipyards of Europe.

A very interesting book for the lovers of diplomatic, naval, marine engineering or shipbuilding history.

Tariff Revision To Promote Foreign Commerce

By Clarence H. Matson

*Manager, Department of Foreign Commerce and Shipping,
Los Angeles Chamber of Commerce*

The tariff is by no means a modern invention. I find that ancient Rome imposed tariffs — sometimes high, sometimes low—but always for revenue purposes. Feudal barons of Europe did the same thing; and the linen tax collected by the war lords of interior China is a near relative of those old European tariffs.

All of these tariffs, however, were to raise revenues.

The protective tariff is a modern invention and another very modern idea is the prohibitive tariff, which, while purportedly an import duty, in reality has the effect of an embargo.

Tariff, originally a means of raising money, was assessed on an ad valorem basis, and the taxing powers frequently made it all the traffic would bear. In modern commerce, however, some import duties are being made so high that they are more than the traffic will bear and become prohibitive. These tariffs kill business and revenue instead of promoting it. This has been the tendency in the United States in recent years. Not only do we find the 1930 Tariff Act full of such prohibitive duties but we are constantly confronted by demands from various interests for a sufficient increase in duties as to prevent merchants in other countries from selling in American markets.

A protective tariff is not concerned with the revenue produced, but its purpose is to protect the American working man and his standard of living. Its purpose is not necessarily to shut the foreign product out of American markets but to make the cost of such products laid down in this country sufficiently high that they cannot undersell the domestic product.

A prohibitive tariff goes much

further. It is made high enough to be an effective embargo and gives the domestic product a monopoly over the domestic market. If it is sufficiently high it allows the domestic manufacturer or producer an excessive profit, to the detriment of the domestic consumer.

In recent years we have gone to the extreme of enacting many prohibitive tariffs, and it is a common idea with many Americans that foreign products should be kept out of the country and the domestic market saved entirely for domestic products.

This was the status in 1931, when England went off the gold standard and the pound sterling was depreciated. That not only made it possible to bring British goods into the United States at a much lower cost than formerly but it also had the effect of enabling British manufacturers to undersell American products in many markets throughout the world, particularly in the British Empire. American automobile manufacturers, for instance, lost their very important markets in Australia and New Zealand, in British South Africa, and elsewhere.

This move on the part of Britain, was followed a few months later by the Japanese, who also went off the gold standard and depreciated the yen from just under 50c value in American money to around 20c, and it was not long before Japanese manufactured products began to invade the American market. Soon we heard that Japanese electric light bulbs were coming into this country in large quantities, and this was true, although they took only a small fraction of the American market. The albacore, or white-meat tuna, on which Southern California cannerymen built up a great domestic demand for tuna, emigrated a few years ago from

these waters across the Pacific to the shores of Asia. We still had other varieties of tuna, but in order to get white meat it was necessary for our cannerymen to import frozen fish from Japan. When the yen went down to 20c it was possible for Japanese cannerymen to invade this market and sell white-meat canned tuna direct to the American public, and something more than 600,000 cases came into this country last year. Rubber soled shoes, woven cotton gloves, and a number of other items likewise are coming into the United States from Japan. Formerly, the American manufacturer had a monopoly in these and many other items, and to find American markets thus invaded by foreign goods produced a great deal of commercial anguish.

● Nationalistic Movements

This gave a great impetus to the nationalistic movement which had arisen in the United States as well as in other countries. British manufacturers had originated the slogan "Buy British". In Australia it was narrowed down to "Buy Australian" first, and "Buy British" second. Economics forced its adoption in other forms in other countries. Latin-America, for instance, had to establish a system of exchange control in order to keep from bankruptcy. Here in the United States the slogan "Buy American" became popular and greatly reduced the markets for imported goods. Not only were higher tariffs advocated but absolute embargoes and other restrictions were advanced, and our imports came down proportionately.

Two years of this sort of psychology gradually slowed down the wheels of industry and production throughout the world, until in 1932

exports from the United States were less than one-third of what they were in 1929.

Then too, this had a very disastrous effect on domestic trade, throwing many who had been producing exports out of work, decreasing buying power, and domestic trade through our harbors also saw a tremendous slump. This nationalistic movement, I believe, has been a very large contributing cause to world-wide economic depression.

After studying many complaints which have come to me both from importers who have been shut out of this market by prohibitive tariffs, and by domestic manufacturers who have seen their markets swept away

by imported goods, I have come to the conclusion that a non-political, scientific tariff which would raise the cost of the imported article up to the level of the average domestic cost would not only be defensible but it would also make for the exchange of trade with other countries, if such countries could be persuaded to adopt similar systems.

We are hearing a great deal in these days about reciprocal tariff agreements between countries, and we have just authorized our President to negotiate such trade agreements. I am a great believer in the general principle of trade reciprocity. Trade is just that! All the profits cannot be on one side. Trade

should be an exchange of products equally beneficial to both parties to the transaction. However, for many years the United States has sold much more than it has bought, and in view of this fact, I am uncertain of the wholesale profit from reciprocal treaties which some people are expecting. We must give as well as take in negotiating trade agreements, and I believe it is possible to aid both ourselves and other countries by making such agreements, but not perhaps in a wholesale way with our present system.

[Abstract of paper presented at Association of Pacific and Far East Ports, Stockton, California, August 22, 1934.]

The New Deal in Foreign Trade

By Raymond V. Winquist

Assistant to the President, General Steamship Corporation, Ltd.

Of all the strange paradoxes in this strange world, I believe that none can be stranger than that which confronted our foreign trade policy in 1929 and 1930. As Secretary of Commerce, Herbert Hoover sent his commercial attaches and trade commissioners to every quarter of the globe. Our trade boomed. It reached the staggering total of ten billions a year and placed us ahead of every competing nation.

We wanted more. We wanted to continue building our vast export trade, but at the same time we wanted to curtail our imports. So we passed the highest tariff bill in our history. The same administration that had built up this powerful machine for coralling foreign trade destroyed much of its constructive work with a single stroke.

It is hardly necessary to dwell at length on the repercussions that followed. Higher tariff barriers, quota restrictions and, in some cases, actual embargoes were imposed against our products. We witnessed a staggering loss in our foreign trade, until last year it was only one-third of what it was in 1929. Our exports actually fell below the 1914 level. In this dilemma, California suffered particularly from measures insti-

tuted against her agricultural specialties by Canada, United Kingdom, Germany, France, Italy, Norway, Sweden and the Netherlands.

● The Tariff Question

How are we to open the channels to trade and increase the export of American goods? How is this to be done in a manner to admit useful or desirable commodities, yet prevent dumping cheap goods that will upset our American standard of living? It is obvious that this can be done only through an intelligent, controlled tariff procedure, instead of the clumsy, unscientific, political log-rolling that has characterized our trade policy in the past.

I am of the opinion, that the only possibility for any early revival in our foreign trade lies in the reciprocal trade legislation recently enacted. This act confers upon the President the right to modify existing duties within certain limits in accordance with agreements that he may have negotiated without going through the formality of ratification by the Senate. In nearly all other countries, the executive has a legal right to negotiate such agreements.

● Trade Bargain Possibilities

The people of the United States comprise the richest market in the

world. We are large consumers of many products that we do not produce. A large list of these goods enters our market entirely free of duty without corresponding concessions for the entry of our products into the countries supplying these goods.

We buy half of the world's production of coffee. A large quantity comes from Brazil. Is it not fair that we ask Brazil to reduce her duties on our motor cars or on our dried fruits? We let British India send us tea and jute without the imposition of duty; shouldn't American shoes enter India duty free? Why shouldn't a similar rule of bargaining apply to silk, rubber, tin, cocoa and many other commodities not produced in this country, so that by agreement these commodities will continue to enter our market without duty, but only on condition that the countries from which they come will permit certain American commodities to enter duty free?

Then there is the possibility of our negotiating for concessions by offering to grant reductions in our duties on various articles which are more or less non-competitive with American products and with respect to which foreign countries possess a clear inherent advantage.

If certain tariff restrictions on California honey should be removed by Italy, in the spirit of reciprocity, a concession in duty on Italian olive oil is in order. American production of this oil provides only 2 per cent of our consumption, although it is protected by a duty averaging over 75 per cent. For that protection of this small American industry, the American consumer paid over \$5,150,000 in duties in 1932—and this is the equivalent of \$17 for each gallon of domestically produced oil. That's a pretty high subsidy to protect an American product now worth \$1.40 per gallon. It would be possible for us to reduce these duties to one-tenth of the amount now collected, and yield the government more than enough revenue to buy the entire annual domestic output at its present market price.

Similarly there is a 90 per cent duty on embroidered linen handkerchiefs despite the fact that in 1931 domestic production was valued at only \$90,000 as against imports of over \$2,266,000. Other examples of dutiable articles of which there is little or no domestic production are: menthol, sunflower seed oil, vanilla beans, manganese ore, anchovies, brazil nuts, cocoanuts, cashew nuts, castor beans, dried mushrooms, flax fibre, oriental rugs and dressed furs.

Then there are instances where duties now almost completely exclude foreign competition. The Tariff Commission has reported that in 1931 there were no less than 1,021 dutiable articles of which imports represented less than 5 per cent of domestic production. In a very large proportion of these cases imports were less than 1 per cent of the amount produced in the United States.

There are also instances where imports have declined drastically during recent years in comparison with domestic production. Where imports have fallen more than consumption, it is apparent that the tariff is restricting trade and is higher than can be justified on the ground of protecting the existing status of American industries. The tariff commission has listed no less than 40 important commodities in this category.

In addition there are some instances where duties are ridiculously high, largely due to decline in prices between 1929 and 1933, which has

served to make all specific duties much higher than originally intended. In such cases we could very well offer reductions in bargaining for trade advantages without injuring ourselves in the least. On clocks, for example, the duty was equivalent to 108.5 per cent in 1931; on wool fabrics, 84 per cent; on silk hosiery 60 per cent; on onions 148 per cent. The Tariff Commission has listed 540 articles on which the duty exceeded 50 per cent in 1931.

In all these items, there is surely a basis for some good old "yankee trading" and a great many leaders in business and government count on this procedure to bring substantial results. Probably there is no more capable group of business men in the world than is found in the gigantic American automobile industry. In 1929, before that industry felt the effects of retaliation that followed our Smoot-Hawley bill, a million American automobiles were shipped to foreign markets. In a recent report, the industry's export committee stated that the average automobile shipped abroad today must pay an average duty of 58.29 per cent of its factory price before it enters its foreign market, while the ocean transportation costs on such a car equals only 14.5 per cent. That is the kind of barrier placed against one of our principal products.

● Change Needed

It is quite obvious that a change in our attitude toward imports is fundamental in any program we may undertake for the revival of foreign trade, and I believe the American psychology is now undergoing that change. When we poured 25 billions as loans into foreign hands during and after the War, it was quite possible for us to ship enormous quantities of goods abroad without accepting a corresponding amount in return. But we were shipping on credit and the bills aren't being paid. We have come to the reckoning. We're not in a frame of mind to lend any more. We have learned better. We must hereafter reconcile ourselves to the grim fact that, if we are to trade at all, we must be paid in goods.

In his extraordinary document "America Must Choose" Secretary of Agriculture Wallace weighs the problem of our muddled foreign trade situation from the viewpoint of agriculture and the country as a whole.

He holds out no easy solution, but there seems to be a ray of hope penetrating his able diagnosis of the situation when he reminds us that we should not conclude because international trade has declined heavily throughout the world since 1929, that it is destined to decline permanently. "Compared with the developed parts of the world," he says, "the relatively undeveloped parts are still very large. Among these we may include vast areas in Africa, India, China, Russia, South America and elsewhere. Moreover, the nations that we consider well developed are probably nowhere near the limit of their possible development in civilized purchasing power. It may be that we have seen world trade only in its early stages. Expansion on sound lines, with trade based on genuine reciprocity of one sort or another may furnish scope in expanding economic energy indefinitely."

[Abstract of Paper presented at Association of Pacific and Far East Ports, Stockton, August 22nd.]

Book Review

DIESEL ENGINEERING HANDBOOK—Seventh Annual Edition. 245 pages of text, 75 pages of informative advertising, copiously illustrated with numerous half tones and drawings—size 7 in. x 10 in.—bound in dark green, limp, pebbled leather with gold stampings. Published by the Business Journals, Inc., New York. Price \$5.00 net.

Before the depression, this annual publication had become an American standard in its line, and the fact that for three years its publication was suspended will make this new edition very welcome to the diesel engineering fraternity.

It covers in a very thorough manner the fields of the application of diesel power including marine propulsion, electric power generation, and the driving of isolated mechanism in general industry.

New developments in the design and construction of diesel engines are exhaustively treated. In short, this handbook, covering three years of development in a fast growing department of American engineering, should prove indispensable to engineers and students interested in the diesel idea.

..... The Beachcomber's Loot

*Some Marvelous Sea Lore Gathered Where Found, Without Regard
to Authority. Only the Ink and the Paper were Ours and Those
are Now Yours. Quien Sabe?*

Fish Yarns: On June 2 of this year, the British steamer *Losada*, in the north Atlantic, steamed for one and one-half hours through a huge school of sharks. As far as the eye could see, port and starboard, the shark fins were visible. Thirty, seen on the port side at one time, ranged in length from 16 to 20 feet.

The U.S. Coast and Geodetic survey steamer, *Pioneer*, was stopped one day last summer off the Southern California coast by a large school of squid which kept blocking the inlet for the circulating pumps and made it necessary to shut down the engine. The *Pioneer* was several hours drifting through the school.

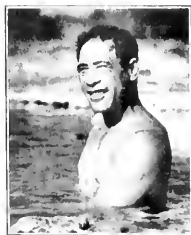
"And the desert shall blossom . . ."
About 27 miles off the coast of Maine is Mount Desert Rock, lifting about half an acre of granite above high water. Surmounted by a lighthouse tower and keeper's house, this station was formerly considered one of the bleakest outposts of the United States Lighthouse Service. The winter storms still sweep over it and it is then desolation itself, but in summer, for many years past, thanks to the heroic endeavors of the women folk on the rock, and the courtesy of the Maine coast fishermen, this desolate rock has been transformed into a riot of floral color. All through the month of April, every commercial fisherman leaving the fishing ports of Bar Harbor, Southwest Harbor, and Bass Harbor on Mount Desert Island carries with him for the rock a big grain sack full of garden soil. This is kept up until the women on the rock say "enough."

The soil is packed into all the

crannies of the rock, and in May the seeds of hardy annuals are planted. These grow with great rapidity, and in late summer and early fall the Mount Desert Rock is a blaze of glory in the gray north Atlantic.

With the first frost the flowers disappear, and the first great winter storm washes away every vestige of garden and of soil, but as long as the soil on Mount Desert holds out there will be a new garden on the rock for each succeeding summer.

Fire At Sea. On July 13, 1925, the Chilean five-masted steel ship *Flora* sailed from Cardiff for Mejillones with 5000 tons of patent fuel and 800 tons of coal and coke. All went well until she was nearly down to Cape Horn latitudes, when it was discovered that the cargo was afire. Fighting this fire as best they could, the crew worked her into the Gulf of St. George, where at Comodoro Rivadavia, on September 18, officials of the Argentina government oil fields took a hand and pumped steam into her holds. The fire, however, continued to spread, and on October 1 two explosions occurred, bringing down the main mast. She was beached, but later floated off and drifted away to sea, where she was pursued



by an Argentine cruiser and sunk by gun fire, as she would have been a great menace to navigation.

Flora was formerly the German ship *Potosi* of the famous *Laeisz* fleet of nitrate clippers. At the time of her loss she was the largest sailing ship afloat. She was built in 1895 by the Tecklenborg Company at Geestemunde, her dimensions being: Length, 366.3 feet; beam, 49.7 feet; depth, 28.5 feet; gross tonnage, 4,026; and deadweight cargo capacity 6,150 tons. Her main mast measured 210 feet from deck to truck. She had a good turn for speed, and, when running free, logged 18 knots on at least one occasion, and 17 knots many times. In 1903 she made a homeward passage from Iquique to Prawle Point, England, in 57 days, which is said to be the record home-bound from the nitrate ports.

A Cape Horn Record. Captain Robert Hilgendorf of Hamburg, who commanded the ship *Potosi* when she made the above-mentioned record was an extraordinary man and a seaman of rare ability. Last fall he was (and we hope still is) very much alive, and residing in Hamburg. Born in 1852, he went to sea at the age of 14, was first mate at 24, and captain at 29. He was a great student of meteorology and very clever in taking advantage of his knowledge in this subject. In 1895 he was given the new *Potosi*, largest sailing ship in the world, and for many years with an unflinching regularity he sailed her from Hamburg out to the nitrate ports of Chile and back to Hamburg. During his career he rounded Cape Horn sixty-six times,

which is said to be a record for any captain.

Gold from Sea Water. Every year or two there is considerable excitement among the gullible over the newspaper publicity given to some scheme for the extraction of gold direct from sea water. In 1898 there was formed the Electrolytic Marine Metals Company of Lubec, Maine, which flourished as a stock promotion so successfully that the manager absconded to Europe with the snug sum of \$338,000 derived, not from sea water, but from the stockholders. Of \$2,400,000 worth of stock sold at par, 45 per cent went to the promoters, 20 per cent to the financial agents, and 35 per cent into working capital, some of which was expended on the works, the balance going to the manager above noted.

To substantiate their claims the Lubec wizards lowered into the sea a large box containing a pan of mercury. Just above this box, electric current was applied to the surface of the water from a special battery made by the inventor of the process. The current was applied all night in the presence of several local and New York bankers. The box was pulled up in the morning and the mercury in the pan was found to contain \$5.40 in finely divided gold. This experiment, together with several bricks of gold shipped from Lubec to Wall Street at intervals, enabled the promoters to sell \$2,400,000 of stock. It was afterwards proved that a diver stationed under the wharf at Lubec had exchanged a pan containing gold amalgam for the pan containing the mercury — a simple shell game on a large scale.



Beware of Vacua. While lying at Smyrna about July, 1899, the British steamer *Elderslie's* black gang blew down her boilers, two in number, double ended Scotch marine type. A few hours later 3rd Assistant Engineer E. Marshall, assisted by a



Greek fireman, proceeded to open up boiler No. 1. The manhole cover in the end plate at the after end of the boiler was removed. One cross bar on the cover had been taken off, and a nut started on the other when Marshall sent the fireman to start work on the manhole cover on boiler No. 2. Just after he left, the fireman heard a loud report and ran back. He found the manhole open, but the cover and the 3rd Assistant had dis-

appeared, so he called the chief.

The chief found the boiler so hot he could not put his hand on it, and its interior so hot that he could not put his head inside. He found blood on the edges of the manhole.

After waiting for the boiler to cool, they found Marshall's body with his skull crushed against the forward end of the boiler and with the manhole cover under the body.

The Board of Trade inquiry decided that when the boiler was blown down at fairly high pressure, neither the safety valve nor the cock was opened, and when the steam condensed inside, a fairly high vacuum was formed, so that the loosened manhole cover and the man holding it were both pushed through the manhole by the rush of air to fill this vacuum.

Arc Welded Pontoons for Port of Portland

Ship channels to Portland, Oregon must be kept navigable to depths required by deep-draft ocean-going vessels. Maintenance of navigable waters requires periodic dredging of the Columbia and Willamette rivers.

That the port of Portland, Oregon, appreciates the need of modern efficient dredging equipment is indicated by its recent order of 100 arc welded pontoons to be used for floating dredge pipe on the Columbia and Willamette rivers. The new equipment was built by King Brothers of Portland and replaces riveted tanks and wooden boats formerly used for this purpose. According to the builders, arc welding provides a lower initial cost and increases the life of the equipment due to water-tight construction.

Each pontoon was fabricated in three 8-foot sections. The overall length is 24 feet 6 inches and inside diameter 5 feet 6 inches. Shell plate thickness is 5/16 inch, heads 3/8 inch.

Each pontoon contains approximately 143 linear feet of welding. Butt welds were used in welding the girth and longitudinal seams, while the convex heads were lap welded,

both inside and out to the interior of the shell. All seams were welded one pass inside and two passes outside. In welding the heads into the shell two passes, one inside and one outside were used. Welding equipment was supplied by The Lincoln Electric Company, Cleveland, Ohio.

In finishing the pontoons, the outside was thoroughly cleaned, using a 10 per cent solution of hydrochloric acid over all seams. The whole surface was then painted with two coats of red lead.

Before delivery each of these pontoons was thoroughly tested for watertightness. Application of air pressure revealed no leaks.



One of the arc welded steel pontoons for floating dredge pipes at Port of Portland.



Marine Insurance

Marine Safety Conference

*Some Excerpts and Abstracts of Papers Delivered before the
Marine Section 26th Annual Safety Congress,
Cleveland, October 1-5, 1934*

WHAT THE SEAMEN THINK OF SAFETY, by David Berman. The steamship companies spend thousands of dollars annually in promoting safety on ships. The seamen spend no money and are asked only to invest some time and attention towards the promotion of safety on vessels. A consideration of what the seamen actually think of safety and the safety movement is timely because there are numerous elements involved which bear marked difference from the attitude of workmen on land.

The crew can be divided into two simple categories: licensed and unlicensed personnel. The licensed personnel, which includes the captain, mates, engineers, radio operator and steward, obviously have a greater interest in their occupations. Many of them make it their life work. Since they have more at stake, they manifest a greater interest in their job. They quickly understand the rules of safety laid down and eagerly follow them out. They realize the value of safety in their work and welcome the development of safety measures.

The unlicensed personnel, in which are found the sailors, A.B. and ordinary, bos'un and quartermasters, oilers, wipers, firemen, messboys and cook, are usually less willing to profit by safety regulations. Many reasons may be cited for this, but one of the most outstanding is the transient quality of their employment. Numbers of the men are a shiftless lot, completely lacking in ambition. They

sign on a ship because they can get no work ashore or are fitted for none. Others, victims of the economic dislocation of our time, sign for a trip at sea as a temporary stop-gap. They are interested only in the wages involved, and with any possibility of a job on land, leave the sea. They have very little or no loyalty to the company, and often leave a ship for trifling causes, such as a dislike for the captain, mate or engineer. They drift from Coast to Coast, ship to ship, company to company. Work to them is merely work: a job, a certain amount of pay, a bed and three meals a day. There are exceptions to the rule, of course. You will find seamen, content to remain bo'suns or quartermasters, who have a love of the sea and of their ship. These men are loyal, willing to observe safety suggestions, and maintain a pride in their work. Alongside of these men is to be found a certain element which we will call "radical" for want of a better term. This element sneers at all safety suggestions and movements as being a decoy and palliative. They resemble the same radical element which scoffs at the ruling of New York City that all men at the public municipal dances in the parks must wear their coats.

Necessarily, the attitude of the unlicensed personnel is vastly different from that of the licensed officers. The crew thinks less of safety because they aren't capable of thinking much about anything. They have very little at stake. In addition, they are inured to the thought of hard-

ship, injury and disease, and have little or no imagination to visualize the results of an accident. I do not mean that they welcome injury, hardship or disease. They will eat just as heartily of the salon's menu as of their own mess. But when their existence is reduced to the elements of food, clothing and shelter, plus a few dollars for periodical dissipation, life itself becomes void of meaning. They would just as soon take a chance in their work as not. Until they have sustained an injury, they have supreme confidence in their own ability to take care of themselves in their work. As they think of their work solely in terms of remuneration, safety must be forced upon them.

Somewhat outside of these classifications is the old sea-dog who has been a sailor for twenty, thirty or forty years, and who simply cannot be taught any safety rules. He insists on doing things his own way, and is bitterly resentful of any change, even though the change is for his betterment.

On the other hand, regard for safety comes naturally to the licensed personnel. Before they get their licenses, they must have training, education, knowledge. The meaning of an accident or an injury, either to themselves or their ship, is impressed on their minds since they have the responsibilities of the ship on their shoulders. They have their own responsibilities too, and welcome anything tending to make their job safer. The task of transmitting the

meaning and aims of safety to the crew lies, for the most part, upon them. But they can also wreck the meaning and aims of safety by being callous and not sufficiently insistent upon maintenance of safety rules.

CLAIMS and ACCIDENT PREVENTION, by Capt. E. C. Holden, Jr. The marine problems this year and as foreseen in the next few years are a bit different from those in the past, but the laws of Nature, including the laws of Human Nature, are fixed and constant and immutable. Further knowledge of some of these laws of Human Nature, simply expressed, may help us to meet modern problems.

Safety Engineering is somewhat of a misnomer; in reality it is Efficiency Engineering, but as Human Nature is irresistibly opposed to the so-called class of "Efficiency Engineers" who it is claimed by some, harass industry with new ideas, we will be content to go along with the former appellation.

Accident Prevention may also be termed a misnomer, in actuality it means "Claims Prevention." To the average business man, the financial sheet is what tells the story. The cost of accidents — claims paid — should be charged as "operating costs" against each respective department involved. Accidents to human life and to property always have their reflection in dollars and cents.

An efficiently administered accident prevention program may be a decisive factor in claims prevention. Ways and means for the prevention of false and fraudulent claims are pointed out. Ship's safety committee meetings become forums for the discussion of both accident and claims prevention measures, accidents are

immediately investigated, witness statements prepared, and the true facts of the case determined. In this manner the interests of the shipowners become fully protected. Otherwise, experience has proven that a certain class of so-called "negligence lawyers" will succeed in constructing circumstances involving possible ship liability which may not have existed originally, and to the manifest detriment of the owner's interests.

A well known marine authority has accurately stated the case as follows:

"No self-respecting American shipowner objects to proper compensation for the employee who is injured in the line of duty when it can be shown that responsibility for the injury rests upon the owner. But the business of collecting damages has assumed such proportions that it seems the owner is justified in sometimes wondering whether he is working to support himself and his employees or for the benefit of that branch of the legal profession which, it is conservatively estimated ultimately receives at least one-half of the more than a million dollars paid out annually by American steamship companies in court awards and legal fees in personal injury litigation."

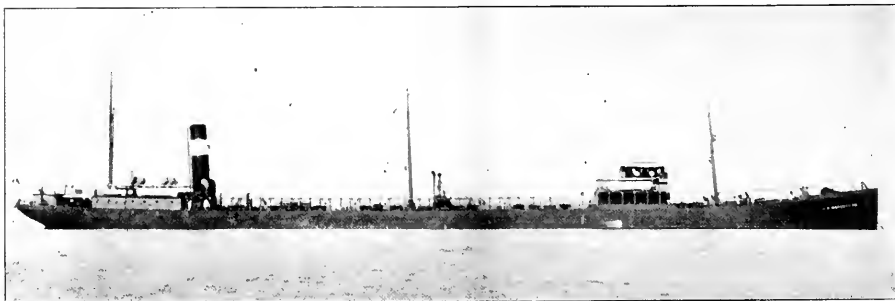
"To solve this problem which is constantly growing more serious, some shipowners have urged the amendment of Section 33, Merchant Marine Act, 1920; while another school of thought is of the opinion that a more equitable solution, both for the seaman and the shipowner, is to be found in the enactment of employees' compensation legislation for seamen, patterned after the U. S. Longshoremen's and Harbor Workers' Act of 1927."

OIL TANKERS — SAFETY OBSERVATIONS by Willard F. Jones. A careful research into the experience record of a company will reveal the outstanding causes of accidents. In accordance with the law of averages it can be reasonably assumed that unless accident hazards are systematically eliminated through safety study and observations that there will be frequent repetition of like accidents involving claims and increased financial outlay.

A requirement that new men undergo a thorough physical examination, prior to being employed aboard ship, will go a long way toward preventing subsequent fraudulent claims for illnesses and injuries allegedly contracted during employment. It will also tend to procure the application for work by strong, healthy men, efficiently adapted for their jobs. Weaklings and diseased men will not apply for work where they know that pre-employment medical examinations are made.

We have found it advisable to restrict visitors from going aboard oil tankers as their unfamiliarity with the vessel may result in an accident.

Analysis of accident cases covering a period of several years with our company does not reveal many instances from, what we consider, the major hazard, namely; fire and explosion caused by ignition of petroleum vapors. Constant watchfulness on the part of the officers and men with severe penalties for overflow of tanks and infraction of non-smoking regulations probably had some effect. Our men today have learned considerably more of the grave dangers arising through the careless handling of cargo from the hitherto mysterious element—electricity—and from spontaneous com-



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bustion; the building up of more experienced tanker men has almost brought to a disappearing point the danger from bursting hose.

However, we are amazed at the end of the year to see how numerous lost time injuries to members of our crews can be and, in making a survey of the causation of such injuries, we find the percentage of accidents to be as follows:

| | |
|--|-------|
| Through falls aboard vessels..... | 34.5 |
| Being struck by falling objects | 8.4 |
| Struck by flying objects | |
| (which includes eye injuries) | 7.9 |
| Caught between objects (usually machinery) | 7.3 |
| Lifting objects (sprains and hernias) | 6.6 |
| Burns and flarebacks | 4.1 |
| Heavy weather | 3.9 |
| Handling objects (mooring lines) | .6 |
| Galley accidents | .4 |
| Miscellaneous | 26.3 |
| Total | 100.0 |

"It's all in the day's work" is a slogan that tanker men, in common

with other seamen, use as an excuse for carelessness and a bruised finger of an apparently trivial nature will be magnified to a very grave injury by some "ambulance-chasing" lawyer or runner therefor. For this reason, regardless of what the officer in charge may think of the severity of an accident, we insist on the usual full written report to our office, and the general "take-a-chance" attitude of officers and crew must be strongly discouraged and the men made to feel that it is their own responsibility to see that safety measures are maintained.

One of the wisest safety precautions that can be taken is that of starting a new man on his job "safely minded". One of the essential duties of a department head on board ship is to be painstaking in his instruction as to correct safety methods in the performance of the day's work. Where safety regulations have been prepared, new men must be impressed with the importance of observing them.

liquid metal being forced into the interstices of the fiber layer and subsequently chilled. The result is a "soldered" bond between fiber and steel, the bond being of such a nature that it is unaffected by heat, up to its melting point, and by any amount of moisture. Thus at once a steel sheet having asbestos integrally attached is made available for fire-resistant doors and partitions in marine construction.

It has also been found that such a fiber-coated panel is admirable for the superposition of resinous finishes and thin layers of wood veneer. To arrive at such a panel, the fiber-coated sheet is first saturated with a suitable resin, bakelite, for example. Thin wood veneers and photographic reproductions of marble, wood veneer, textiles, etc., are then laid over the impregnated sheet and subjected to heat and high pressure. Such a series of operations produces a sheet of metal protectively and decoratively coated with very thin laminations of resinous materials. In addition to protective and decorative qualities, the impregnated layer attached to the base metal adds some rigidity. These decorative panels are suitable for the construction of fireproof furniture, wall paneling, and interior trim of any description.

Past history relative to marine fires makes it worth while to call the attention of the naval architect to "Robertson Bonded-Metal" in the design of all forms of marine equipment. Few products combine as satisfactorily the qualities of light weight, strength, water and fire resistance, beauty and permanence, as does this new constructional material.

New Fireproof Materials for Marine Construction

In 1932 Mellon Institute of Industrial Research, Pittsburgh, Pa., announced a new constructional material called "Robertson Bonded-Metal" ("R-B-M"); the H. H. Robertson Company, of Pittsburgh, sponsoring the research work on which this product was developed. It is now announced that, during the past two years, a series of fireproof building materials has been evolved from "R-B-M" to the point where

they are now being offered as commercial products.

"R-B-M" is manufactured by bonding fibrous material, such as cloth, asbestos, and felt, to steel by the use of a soft metallic adhesive. The soft metal is applied to steel by a hot dipping process and the coated sheet is then reheated until the coating metal becomes liquid. While the coating metal is liquid, fibrous layers are rolled on to the sheet, the material.

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Marine Insurance Notes

Balfour Guthrie Resumes Marine Insurance. Announcement was made recently that the Balfour, Kessler agencies having been dissolved as of October 1, hereafter Balfour, Guthrie Company, Ltd., will continue to act as general agents for the Marine and Fire Insurance Companies the dissolving company represented, and so for the Standard Insurance Company of New York and the Tokio

Marine and Fire Insurance Company, Ltd.

The Pacific Coast management of the marine insurance department will continue as before under Messrs. Harold V. Manor and Herriot Small, and the fire insurance department will be in charge of Messrs. Ralph Thornton and George Jardine as manager and assistant manager, respectively.

Gerald E. Hampshire for the marine insurance and Richard Walker for the fire insurance department, will continue in the management of the Los Angeles office. Offices are located in the Balfour Building, San Francisco; and in the Union Oil building, Los Angeles.

*Pacific
Marine Review*

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INSURANCE

BROKERS FOR THE ASSURED—AVERAGE ADJUSTERS

Freights, Charters, Sales

October 19, 1934

Since our last report, the full cargo market has been firmer as far as the Oriental and Australian lumber trades are concerned and weaker in the grain trades.

There has been little demand for either wheat or barley and considerable distress space has been offered by liners without much response from shippers. Several ships which had been intended for the British Columbia / United Kingdom berth were shifted to the Trans-Pacific trade and as will be noted from the subjoined list of fixtures there were a number of charters for Australia.

Following is a list of charters:

Grain and General: British steamer Hadleigh, British Columbia to Hull and Immingham 21/6; British steamer Newton Elm, San Francisco, U.K. Barley 24/-; Norwegian motorship Cipto, British Columbia / London, 20/9, f.i.o.; British steamers Nollington Court and Iddesleigh, British Columbia / London 21/-, f.i.o.; British steamer Somersby, British Columbia, 1 port U.K., 20/6, f.i.o.; Panama steamer Virginia Nicolou, British Columbia / Hull London and Avenmouth, 20/6, f.i.o.; British steamers Mabriton, Grainton, Koranton, Everleigh, Oakworth, Bonnington Court, all British Columbia / U. K./Cont., p.t.

Lumber: Yugo Slav steamer Trig-

lav, Columbia River to China, p.t.; British steamer Amberton, Puget Sound / Japan, lump sum \$4500; Norwegian motorship Poljana, Humboldt Bay Peru, p.t.; A steamer (British) North Pacific to Shanghai and Pukow, \$5580, lump sum, f.i.o.; British steamer Uffington Court, \$5475 Shanghai \$200 extra, Pukow and Nanking, f.i.o.; British steamer Jevington Court, Pacific Coast to Wuhu and Pukow, \$5450, f.i.o.; British steamer Riverton, British Columbia / Shanghai, \$4350, f.i.o.; British motorship Deebank, British Columbia / 3 ports Japan \$5500, f.i.o.; British steamer Framlington Court, British Columbia / Sydney and Newcastle, \$25,250 lump sum, f.i.o.; British steamer Anglo Indian, British Columbia / Australia, p.t.; Norwegian motorship Norne, British Columbia / Port Pirie, p.t.; British motorship Anglo Australian, British Columbia / Australia, p.t.; British motorship King James, same; Norwegian motorship Vestvard, North Pacific / Shanghai, lump sum \$4600, f.i.o.; Norwegian motorship Erviken, North Pacific / Japan, p.t.; British steamer Kensington Court, same; Japanese steamer Junyo Maru, North Pacific to Sydney and Newcastle, p.t. British motorship King Egbert, North Pacific to South Africa, p.t.; British steamer Anglo Saxon, North Pacific / Japan or China, p.t.; British steamer Hindustan, same; British steamer Induna, North Pacific to Shanghai, \$4850, f.i.o.; British steamer Bencluch, North Pacific to Shanghai, p.t.

Time Charter: American steamers Georgian and Floridian, delivery Pacific Coast, redelivery North of Hatteras; American steamer Herman Frasch, 1 trip Interoceanic trade, p.t.; British steamer Forthbridge, delivery North Pacific, redelivery China; British steamer Rajahstan, 4/9 months, delivery Pacific, redelivery U.K./Continent.

Tankers: A vessel (dirty) 6 voyages Australia / Japan 38c. Another 1 voyage 10/3. (Norwegian) Maridal

(clean) California 4 ports New Zealand, £7000.

PAGE BROTHERS
Brokers

Book Reviews

THE FIREPROOF SHIP. Written and edited by E. F. Spanner, 173 pages (7 in. x 9½ in.) with 24 illustrations, bound in red cloth with black stampings. Published by Charles Birchell and Sons, Ltd., Liverpool, Eng. Price 12/6 net.

An up-to-date survey of a very timely subject. E. F. Spanner is a noted British naval architect and marine engineer. He is the inventor of the duct keel, and of several improvements in ship construction and propulsion machinery. The first section of the book covers all phases of fire risk at sea, of hull design to minimize fire risk, of selection and installation of fire detecting and fire extinguishing systems, and of shipbuilding and ship repairing fire risks. The second section covers the recommendations, rules, and reports of all important boards of marine underwriters; also, all available reports on recent fires at sea, and briefs all recent important papers and lectures on this subject, including the splendid paper read by Mr. G. G. Sharp of New York at the last meeting of the Society of Naval Architects and Marine Engineers.

RIVETING AND ARC WELDING IN SHIP CONSTRUCTION by Commander H. E. Rossell, U.S.N. 210 pages (5 in. x 7½ in.) copiously illustrated with sketches, finish drawings and halftones, bound in red cloth with gold stampings. Published by Simmons-Boardman Co., New York. Price \$2.25.

This is a very useful handbook for students, naval architects, and marine superintendents. It thoroughly covers up-to-date information on design, construction, and maintenance of joints in the ship's hull.

The subjects—oil and water tightness in riveting work, design of riveted joints, and riveting practice—are covered in 77 pages. The balance of the book, 133 pages, is devoted to three chapters: The Design of Welded Joints; Special Design Problems; Practical Considerations.

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American Shipbuilding

MOORE RECEIVES CONTRACT IN LIGHTSHIP JOB

Contract has been awarded by the United States Lighthouse Service, Washington, D.C., to The Moore Drydock Company, Oakland, California, for the reconditioning and conversion of Lightship No. 83, from a coal burner to an oil burner. It is estimated that the cost of the job will be approximately \$65,000. Babcock and Wilcox boilers will be used.

HAWAIIAN COMPANY WILL HAVE NEW BARGE

Young Brothers of Honolulu have recently awarded contract to the Bethlehem Shipbuilding Corporation's San Francisco plant for the construction of a barge for use in collecting the pineapple pack at Molokai and other islands. The new barge will be 175 feet long with a beam of 95 feet and a depth of 11 feet. She will have a ticket from Lloyd's for deep sea going.

TACOMA FIRM GIVES LOW BID ON TOWBOAT

Mojean and Erickson of Tacoma submitted low bid to H. C. Hanson, Seattle, Washington, naval architect for the construction of a 72-foot wooden tug-boat for the Alaska Juneau Gold Mining Company of Juneau, Alaska. The new boat is to be powered with a 275-horsepower dies-

el engine and will be used in taking rock from the company's mines in Southeastern Alaska. All bids were taken under advisement.

Other bids submitted were as follows: Winslow Marine Railway & Shipping Company, \$15,491; Tony Jensen, \$17,620; Olson & Sunde Machine Works, \$18,104; Johnson Shipbuilding Company, \$18,492; Lake Washington Shipyards, \$20,500.

SHIPPING BUREAU LISTS VESSELS BUILDING

There is now a total of 38,870 gross tonnage under construction in the United States according to a report of the American Bureau of Shipping as of October 1, this total not including naval vessels building. The Bureau listing puts the vessels under three heads as follows:

(1) Vessels under construction in United States Yards on October 1, 1934, building to American Bureau of Shipping classification.

(2) Vessels under construction in United States yards on October 1, 1934, Not to American Bureau of Shipping classification.

(3) Vessels under construction in

United States yards on October 1, 1934, for governmental agencies, excluding Navy (No classification).

Under the first heading we find:

Charleston D.D. Co., Charleston, S.C.: 1 tanker, 140'x31'x11'.

Dravo Contracting Co., 2 towboats, 160'x34'x7'9"; 2 deck barges 130'x28'x7'6"; 8 deck barges, 130'x24'6"x6'6".

J. W. Evans & Sons, Tompkinsville, S.I.: 1 deck and oil barge, 130'x38'x11'.

New York S.B. Co.: 2 tankers, 484'x65'9"x37'.

Under the second heading appear: **Charleston D.D. Co.:** 1 towboat for export.

Dravo Cont. Co.: 1 towboat No. 997; 1 floating dry dock (U.S. Navy).

Nashville Bridge Co.: 3 deck barges, 100'x26'x6.5'; 3 deck barges 133'x20'x7'1/2' draft; 2 deck barges 100'x26'x6.5'; 1 towboat, 50'x12'1/2'x4'1/2' draft.

Ingalls Iron Works: 2 pontoons, 140'x8'x7'; 1 oil barge, 200'x40'x8'6".

Marietta Mfg. Co.: 2 covered barges, 132'x35'x10'; 1 diesel towboat, 176'x38'x8'6".

(Page 353, Please)

Deck scene on the first Pacific tanker, S.S. George Loomis, built at the Union Iron Works, San Francisco, in 1896 for the Pacific Coast Oil Company. Her dimensions were 186 feet, 2 inches length; 27 feet, 3 inches beam; 17 feet, 3 inches depth. She was of 691 gross tons and 401.9 net tons, with a displacement of 1,457 tons on a draft of 14 feet, 9 inches. She had a triple expansion engine and one Scotch boiler, which drove her at a speed of 9 knots. She carried 6500 barrels of oil.

The reproduction on page 353 shows her in San Francisco Bay.



Progress of Construction

The following Report Covers the Shipbuilding Work in Progress at the Leading Shipyards of the United States as of November 1, 1934

Pacific Coast

BETHLEHEM SHIPBUILDING CORPORATION, LTD.

(Union Plant)

San Francisco

DRYDOCK, PAINT, MISCELLANEOUS: S.S. President Hoover, Havside Barge No. 4, S.S. Antigua, S.S. Yale, S.S. Monterey, S.S. William Luckenbach, S.S. President Johnson, S.S. Eldorado, S.S. Talamanca, S.S. Malolo, S.S. Admiral Chase, S.S. President Wilson, S.S. President Taft, Barge Martinez, S.S. Chiriqui, S.S. Pomona, S.S. Lake Galewood, S.S. Constance Chandler, S.S. Sonoma, S.S. Lurline, S.S. Okmar, S.S. President Monroe, S.S. Sonoma Maru, S.S. F. H. Hillman.

NEW CONSTRUCTION: Dredge Hull for Natomas Company, keel laid June 15, 1934; delivered, Oct. 1, 1934.

GENERAL ENGINEERING AND DRYDOCK CO.

Foot of Fifth Avenue
Oakland, Calif.

DRYDOCK, PAINT, MISCELLANEOUS: U.S.L.F. Angel Island, M.V. Motor-mates, S.S. Constance Chandler, S.S. Frank H. Buck, M.S. Port Costa, S.S. Catherine Sudden, S.S. Lumberman, S.S. Phoenix and barge, W. P. Barge Carfloat No. 2, U.S.C.G.C. Tahoe.

ENGINE AND MACHINERY REPAIRS: U.S. Engr. Dredge A. Mackenzie, S.S. Mericos H. Whittier.

LAKE UNION DRYDOCK & MACHINE WORKS

Seattle, Wash.

NEW CONSTRUCTION: Hull No. 103, Ariadne, U.S. Coast Guard patrol boat; keel laid March 23, 1934, launched July 1, 1934; estimated delivery, October, 1934.

Hull No. 104, Cyane, U.S. Coast Guard patrol boat; keel laid June 12, 1934; estimated launching August 25, 1934; estimated delivery Nov. 1, 1934.

THE LOS ANGELES SHIPBUILDING & DRY DOCK CORP.

Los Angeles Harbor
San Pedro, Calif.

DRYDOCK, PAINT MISCELLANEOUS: Northwestern, fb; Hermosa, fb; La Brea, ss; San Pedro, ss; Brandywine, ss; Selandia, mv; W. T. No. 4 Derrick Barge; D. G. Scofield, ss; Diamond Head, ss; Tejon, ss.

THE MOORE DRYDOCK CO.

Oakland, Calif.

DRYDOCK, PAINT, MISCELLANEOUS: Santa Monica, American Star, Georgian, Nabesna, Golden Star, Californian, Sutherland, Munani, F. S.

Loop, Frank G. Drumm, Trinidad, Western Pacific Barge No. 1, Ernest H. Myers, Standard Service, Bridge Builders Barge No. 2, Hawaiian, Standard Barge No. 11, Silverado, California, Oakland, Santa Fe Barge No. 1, Shell Oil Barge No. 6, Lindington, H. T. Harper, Nebraska, Plow City, Cahokia, and Patterson.

PRINCE RUPERT DRYDOCK AND SHIPYARD

Prince Rupert, B.C.

DRYDOCK, PAINT, MISCELLANEOUS: S.S. Prince John, D.G.S. Newington, 1 scow, 5 fishing boats, 17 ship repair jobs not requiring docking, 15 commercial jobs.

THE PUGET SOUND NAVY YARD

Bremerton, Washington

NEW CONSTRUCTION: U.S.S. Worden (Destroyer No. 352), LBP, 334'; beam 34'2½"; loaded draft, 10'10"; geared turbine engines; Yarrow type water-tube boilers; keel laid Dec. 29, 1932.

U.S.S. Cushing (Destroyer No. 376); LBP, 334'; beam, 35'¾"; loaded draft, 10'10"; geared turbine engines; express type boilers; keel laid August 15, 1934. U.S.S. Perkins (Destroyer No. 377); LBP, 334'; beam, 35'¾"; loaded draft, 10'10"; geared turbine engines; express type boilers; building under provisions of National Industrial Recovery Act.

Two 1500-ton destroyers for U. S. Navy; contract received August 22, 1934.

Care and Preservation (out of Commission): Arrostook, Jason, Kearsarge, Patoka, Pawtucket, Prometheus, Pyro, AS-8 (ex-Savannah).

TODD SHIPYARD CORPORATION

Seattle, Wash.

DRYDOCK, PAINT, MISCELLANEOUS: Yacht Stranger, S.S. Orsego, S.S. Libby Maine, S.S. Pres. Jefferson.

UNITED STATES NAVY YARD

Mare Island, Calif.

NEW CONSTRUCTION: Smith, U.S. torpedo boat destroyer (DD378); 340 ft. long, 35 knots speed; standard displacement, 1500 tons; keel laid October 27, 1934; estimated completion date, Feb., 1936.

Preston, U.S. torpedo boat destroyer (DD379); 340 ft. long; 35 knots speed; standard displacement, 1500 tons; keel laid October 27, 1934; estimated completion date, May, 1936.

DD391, Destroyer for U.S. Navy; standard displacement 1500 tons; no dates set.

SS181, Submarine for U.S. Navy; no dates set.

Atlantic, Lakes, Rivers

AMERICAN BRIDGE COMPANY

Pittsburgh, Pa.

NEW CONSTRUCTION: Repairs to 20 barges for Carnegie Steel Co.; 14 completed.

BATH IRON WORKS

Bath, Maine

NEW CONSTRUCTION: Hull No. 154, Dewey (DD 349), torpedo boat destroyer for U.S. Navy; keel laid Dec. 16, 1932; launched July 28, 1934; estimated delivery, October, 1934.

Hull No. 159, Drayton (DD 366), torpedo boat destroyer, U.S. Navy; keel laid, March 20, 1934; launching, no date set; estimated delivery November, 1935.

Hull No. 160, Lanson (DD 367), torpedo boat destroyer, for U.S. Navy; keel laid, March 20, 1934; launching, no dates set; estimated delivery, January, 1936.

BETHLEHEM SHIPBUILDING CORPORATION

Fore River Plant,
Quincy, Mass.

NEW CONSTRUCTION: Heavy Cruiser CA-39, Quincy, 10,000 tons. Estimated delivery January, 1936.

Heavy Cruiser CA-44, Vincennes, 10,000 tons. Estimated delivery January, 1937. Keel laid January 2, 1934.

Four Torpedo Boat Destroyers: DD-360, Phelps, keel laid January 2, 1934; estimated delivery, December, 1935.

DD361, Clark, keel laid January 2, 1934; estimated delivery February, 1936.

DD362, Moffett, keel laid, January 2, 1934; estimated delivery April 1936.

DD363, Balch, estimated keel laying, April, 1934; estimated delivery, June, 1936.

Diesel trawler Thomas Whalen, 110' long; launched Sept. 12, 1934; delivered Oct. 1934.

Diesel trawler Atlantic, 110' long, launched Sept. 12, 1934; delivered Oct. 1934.

Diesel trawler Plymouth, 110' long; launched Sept. 25, 1934; delivered Oct. 1934.

CHARLESTON DRYDOCK CO.

Charleston, S.C.

NEW CONSTRUCTION: Order for plans for sternwheel river steamer for Krajewski-Pesant Mfg. Co. to be shipped knocked down to Venezuela, completed.

Contract for one 5,000-barrel all-welded steel tanker for Messrs. Thurber & Powers of Boston; estimated comple-

tion date, Dec. 1, 1934.

COLLINGWOOD SHIPYARDS, LTD.

Collingwood, Ont.

DRYDOCK, PAINT, MISCELLANEOUS: Tug Ral G. Weddell.

DEFOE BOAT AND MOTOR WORKS

Bay City, Mich.

NEW CONSTRUCTION: U. S. Coast Guard Cutter No. 151 Onondaga; displacement tonnage 1000; keel laid, November 30, 1933; launched Aug. 2, 1934; delivered Sept. 11, 1934.

U. S. Coast Guard Cutter No. 152 Tahona; displacement tonnage 1000; geared turbine drive; B. & W. boilers; 1500 h.p.; keel laid Dec. 15, 1933; launched Sept. 5, 1934; estimated delivery, Oct. 20, 1934.

THE DRAYO CONTRACTING CO.

Engineering Works Dept.,

Pittsburgh, Pa., and Wilmington, Del. NEW CONSTRUCTION: Contract No. 872, Hull No. 997, one diesel stern-wheel towboat of 91 gross tons.

Contract No. 983, Hull No. 1151, one steel floating drydock, Bureau of Yards and Docks, Navy Dept., of 4220 gross tons.

Hull No. 1164, 750 h.p. twin screw diesel towboat for stock.

Hulls Nos. 1194 to 1201, eight flush deck S&G barges 130'x24'x6'6" for stock.

Hull No. 1202; Lighthouse Tender Jasmine, for U. S. Lighthouse Service; 187 gross tons.

This makes a total of 10 hulls under contract, with a total gross tonnage of 2034.

ELECTRIC BOAT CO.

Groton, Conn.

NEW CONSTRUCTION: Hull No. 19, fleet submarine, Shark, (SS174); L.B.P. 298'; beam, 25'; standard displacement, 1315 tons; keel laid, October 24, 1933; estimated launching, April, 1935.

Hull No. 20, Tarpon (SS175); L.B.P. 298'; beam, 25'; standard displacement, 1315 tons; keel laid, Dec. 22, 1933; estimated launching, February, 1935; possible delivery, November, 1935.

THE FEDERAL SHIPBUILDING AND DRYDOCK COMPANY

Kearny, N. J.

NEW CONSTRUCTION: Two destroyers, DD368 Flusser and DD369 Reid for the U. S. Navy, estimated completion dates—Flusser, Nov., 1935; Reid, February, 1936.

Two barges for undisclosed owner; hulls Nos. 132, 133; L.B.P. 205'; beams, 39'; depths, 14'11"; 825 D.W. tons; keel laid April 13, 1934; delivered July 2, 1934, and August 12, 1934, respectively.

INGALLS IRON WORKS

Birmingham, Ala.

NEW CONSTRUCTION: Hulls Nos. 73 and 74, river pontoons; keels laid Nov. 1933; L.B.P. 140'; beam, 8' delivered.

Hull No. 82, Oil Barge, keel laid May 8, 1934; L.B.P. 200'; beam 40'; loaded draft, 8'6"; launched Aug. 1, 1934; delivered.

MANITOWOC SHIPBUILDING CO.

Manitowoc, Wis.

NEW CONSTRUCTION: Three U. S. Coast Guard Patrol Boats, Hull Nos. 277 Dione; 278 Electra; and 279 Pandora; L.B.P. 165'; beam 25'3"; loaded draft, 8'6"; speed loaded, 18 knots; Diesel engines, 1300 S.H.P.; all three launched June 30, 1934; estimated delivery dates: Dione, Sept. 29, 1934; Electra, Oct. 11, 1934; Pandora, Oct. 27, 1934.

Hull No. 280, Lighthouse tender, Tamarack, L.B.P. 111'8"; beam 29'; loaded draft, 7'; speed loaded 10 1/2 knots; diesel electric, 450 S.H.P.; estimated delivery Nov. 1, 1934.

THE MARIETTA MANUFACTURING COMPANY

Point Pleasant, W. Va.

Three 165' Patrol Boats for U. S. Coast Guard, Washington, D. C. Nike, Nemesis, and Triton, 25'3" beam, 13' 2" depth; will draw approximately 7'; twin-screw type, propelled by two 650 horsepower Winton Diesel engines. Total displacement of each vessel approximately 300 tons; required speed 16 knots—now under construction; Nike launched June 23, 1934; Nemesis launched, July 7, 1934; Triton launched August 8, 1934; estimated delivery dates, Oct. 9, 1934; Oct. 29, 1934; and Nov. 18, 1934 respectively.

Two Side Wheel Self-Propelled 34' Pipe Line Dredges of the Duspstan Type. Total contract price \$1,016,500.00. Delivery in 180 and 210 days—Length, molded, 270'0"; length overall, 277' 1 1/2"; breadth, molded, 50'0"; breadth overall, 84'8 1/2"; depth, molded, 8'6"; depth midships, 9'3", first keel laid May 2, 1934; second keel laid June 28, 1934; launched Sept. 1, 1934 and Oct. 6, 1934, respectively.

One twin screw diesel driven towboat for U. S. Engineer's office, Vicksburg, Miss.; length molded 176'; breadth, 38'; depth 8'6"; two 650 H.P. diesel engines; two 75 and one 15 K.W. diesel driven generating sets; contract price \$314,750.00, delivery at Vicksburg, Miss., in six months, estimated keel laying Oct. 10, 1934.

MIDLAND BARGE COMPANY (Subsidiary of Treadwell Construction Company.)

Midland and Eric, Pa.

NEW CONSTRUCTION: Steel Barge 100'x24'x7'; Two steel barges, 31 ft. by 8 ft. 6 ins. by 2 ft. 6 ins. for U. S. Engineers, Memphis, Tenn.; completed and delivered. Four barges, 100'x26'x6'6" for stock.

MIDLAND SHIPBUILDING CO., Midland, Ontario

DRYDOCK, PAINT, MISCELLANEOUS: S.S. Stadacona, S.S. Ashcroft.

NASHVILLE BRIDGE CO., Nashville, Tenn.

NEW CONSTRUCTION: Hull No. 286, Snag boat for U. S. Government, keel laid April 1, 1934; launched, June 24, 1934; estimated delivery, November, 1934; L.B.P. 170'; beam 38'; load-

ed draft 4 1/2'; 600 I.H.P. engine; 2 boilers.

Hulls Nos. 297, 298, 299, three barges for stock; 100x26x6 1/2'; estimated launchings, October 1, 10 and 20 respectively.

Hull No. 300; barge for Davidson County; 60'x16'x3 1/2'; launched October 15, 1934.

NEWPORT NEWS SHIPBUILDING & DRYDOCK CO.

90 Broad Street, New York

NEW CONSTRUCTION: H 359 aircraft carrier CV5, Yorktown, for U. S. Navy; keel laid May 21, 1934; estimated delivery, October 3, 1936.

H360 aircraft carrier, CV6, Enterprise, for U. S. Navy; keel laid July 16, 1934; estimated delivery February 3, 1937.

H361, light cruiser for U. S. Navy; completion time 34 months after date of contract or formal award.

THE NEW YORK SHIPBUILDING COMPANY

Camden, N. J.

NEW CONSTRUCTION: Contract for four destroyers: Hull No. 408, Porter (DD356); Hull No. 409, Selfridge (DD357); Hull No. 410, McDougal (DD358); Hull No. 411, Winslow (DD359); of 1850 tons each; keels laid, Dec. 1933.

Two light cruisers; Hull No. 412, Savannah (CL42), Hull No. 413, Nashville (CL43), of 10,000 tons each for the U. S. Navy Department; estimated delivery dates are as follows: DD356, Porter, Dec., 1935; DD357, Selfridge, Feb., 1936; DD358, McDougal, Apr., 1936; DD359, Winslow, June, 1936; CL42, Savannah, Aug., 1936; CL43, Nashville, Dec. 1936.

Oil tanker, No. 414, and oil tanker No. 415, for Standard-Vacuum Transportation Company, 15,000 tons D.W. each; keels laid March 26, 1934; delivery early 1935.

(C.L. 46) One light cruiser, Hull No. 416, for U. S. Navy; weight 10,000 tons; estimated delivery, August 1937.

THE PUSEY & JONES CORP.

Wilmington, Del.

NEW CONSTRUCTION: Nos. 56, Algonquin; 57, Comanche; and 58, Mohawk; cruising cutters, building for Treasury Department, U. S. Coast Guard Service; L.B.P., 150'; beams, 36'; loaded draft 13'; speed loaded, 15 miles per hour; turbine engines, 1500 S.H.P.; two watertube boilers, 325 pounds pressure, construction schedule; No. 56, keel laid, January 16, 1934; launched July 25, 1934; estimated delivery, September 29, 1934; No. 57, keel laid January 17, 1934; estimated launching, September 6, 1934; estimated delivery, November 2, 1934; No. 58, keel laid, February 1, 1934; estimated launching, September 21, 1934; estimated delivery, December 8, 1934.

SPEEDEN SHIPBUILDING CO. Baltimore, Md.

NEW CONSTRUCTION: Hull No. 274

(Diesel), Electric, wrought iron hull. **Boarding Cutter**, for the U. S. Public Health Service, Staten Island, N. Y.; keel laid March 15, 1934; launched, August 8, 1934; estimated delivery Dec. 27, 1934; L.B.P. 100'8"; beam, 23'; loaded draft, 10'; speed loaded, 12 knots; two 360 B.H.P. Fairbanks Morse engines. Contract received Jan. 11, 1934.

UNITED DRYDOCKS, Inc. Staten Island, N.Y.

NEW CONSTRUCTION: **DD364**, destroyer Mahan, estimated delivery, Oct. 1935, and **DD365**, destroyer Cummings, estimated delivery, Dec., 1935, for U. S. Navy.

DD 384, Destroyer for U.S. Navy; estimated delivery, May, 1936.

DD 385, Destroyer for U.S. Navy; estimated delivery, July 1936.

UNITED STATES NAVY YARD Boston, Mass.

NEW CONSTRUCTION: Destroyer **DD370**, Case, L.B.P. 334'; beam 35'; estimated delivery, Feb. 1936.

Destroyer **DD371**, Conyngham, L.B.P. 334'; beam 35'; estimated delivery, May, 1936.

Destroyer **DD354**, Monaghan, L.B.P. 334'; beam 34'2"; keel laid November 21, 1933; estimated delivery, May, 1935.

Destroyer **DD351**, Macdonough, keel laid May 15, 1933, L.B.P. 334'; beam 34'2"; launched Aug. 22, 1934; estimated delivery, March, 1935; for the U.S. Navy.

DD389 and **DD390**, two light destroyers; estimated delivery during 1937.

UNITED STATES NAVY YARD Charleston, S.C.

NEW CONSTRUCTION: U.S.S. **Charleston**, gunboat (PG51) for U. S. Navy, building period assigned by Navy Department, Nov. 1, 1933, to Feb. 1, 1936. Work started Feb. 1, 1934.

Coast Guard Harbor Cutters 61, 63, and 64; work started Feb. 1, 1934; keels laid June 8, 1934; launched Sept. 28, 1934.

One **Coast Guard Cutter** (2000 tons). No dates set.

UNITED STATES NAVY YARD New York, N. Y.

NEW CONSTRUCTION: **DD350**, Hull, destroyer; L.B.P. 334'; beam, 34'2"; standard displacement, 1500 tons; geared turbine engines; express type boilers; keel laid March, 1933; launched Aug. 11, 1934; estimated delivery July, 1935.

DD 353, Dale, destroyer, dimensions same as above; keel laid, February 10, 1934; estimated delivery, July, 1935.

CL 40, Brooklyn, light cruiser, L.B.P. 600'; beam 61'8"; standard displacement, 10,000; geared turbine engines; express type boilers; estimated delivery, March 24, 1936.

PG. 50, Erie, gunboat; L.B.P. 308'; beam, 41'; standard displacement, 2000 tons; geared turbine engines; express type boilers. Building for U.S. Navy, estimated delivery, December, 1936.

UNITED STATES NAVY YARD Philadelphia, Pa.

CL41, Philadelphia, L.B.P. 600'0"; beam 61'7 $\frac{3}{4}$ "; molded depth at side to main deck amidships 42'0 $\frac{3}{4}$ "; draft corresponding to normal displacement 21'8 $\frac{1}{2}$ "; standard displacement 10,000 tons; date of completion as reported by building yard, January, 1937.

DD355, Aylwin, L.B.P. 334'0"; beam, 34'2 $\frac{1}{2}$ "; depth molded at side to main deck amidships 19'7'7/8"; draft corresponding to normal displacement 10'2'12/16"; standard displacement 1500 tons; keel laid September 23, 1933; launched July 10, 1934; estimated delivery April 1, 1935.

DD372, Cassin, L.B.P. 334'0"; beam, 35'0'1'8"; depth molded at side to main deck amidships 19'7'7/8"; draft corresponding to normal displacement, 10'10"; standard displacement, 1500 tons; keel laid, October 1, 1934; estimated completion date, March 15, 1936.

DD372, Shaw, L.B.P. 334'0"; beam, 35'0'1'8"; depth molded at side to main deck amidships 19'7'7/8"; draft corresponding to normal displacement, 10'10"; standard displacement, 1500 tons; keel laid October 1, 1934; estimated completion, June 15, 1936.

Four coast guard cutters, L.B.P. 308'0"; beam 41'0"; depth molded at side to main deck amidships, 29'6"; draft corresponding to normal displacement, 12'6"; standard displacement,

2000 tons; no dates set.

CA15, Heavy Cruiser, L.B.P. 600'0"; beam, 61'5 $\frac{3}{4}$ "; depth molded at side to main deck amidships, 42'0'3'8"; draft corresponding to normal displacement, 21'10"; standard displacement, 10,000 tons; no dates set.

UNITED STATES NAVY YARD Portsmouth, N. H.

NEW CONSTRUCTION: **S.S. 172**, Porpoise; keel laid, October 27, 1933; estimated delivery, Feb. 1936, SS 173, Pike, keel laid, Dec. 20, 1933; estimated delivery, May, 1936; L.B.P. 289'0"; beam 24'11'1/16"; loaded draft 13'9"; diesel electric engines.

Coast Guard Harbor Cutter 62 Hudson; estimated delivery, Nov. 1934; L.B.P. 104'0"; beam 24'0"; loaded draft 10'6"; diesel electric engines.

UNITED STATES NAVY YARD Portsmouth, Va.

NEW CONSTRUCTION: Torpedo Boat Destroyer **Tucker (DD374)** for U.S. Navy, 341 ft. long; beam 35'; loaded draft, 10'10"; treaty standard displacement, 1500 tons; No. 4 boilers; 35 knots speed; estimated delivery, February, 1936.

Torpedo Boat Destroyer **Downes (DD375)** for U.S. Navy, 344 ft. long; beam 35'; loaded draft, 10'10"; treaty standard displacement, 1500 tons; No. 4 boilers; 35 knots speed; estimated delivery, May, 1936. Laying down lines under way in mold loft.

American Shipbuilding

(Continued from Page 350)

Midland Barge Co.: 1 steel barge, 100'x24'x7'; 4 barges, 100'x26'x6'6".

And in the last classification:

Defoe Boat & Motor Works: 2 Coast Guard cutters, Nos. 151-2.

Lake Union D.D. Co.: 3 coast guard patrol boats, Nos. 102-4.

Nashville Bridge Co.: 1 U.S. snag boat, 170'x36'x41 $\frac{1}{2}$ ' draft; 1 derrick barge (TVA).

Pusey & Jones Co.: 3 Coast Guard cutters, 150'x36'x13' draft.

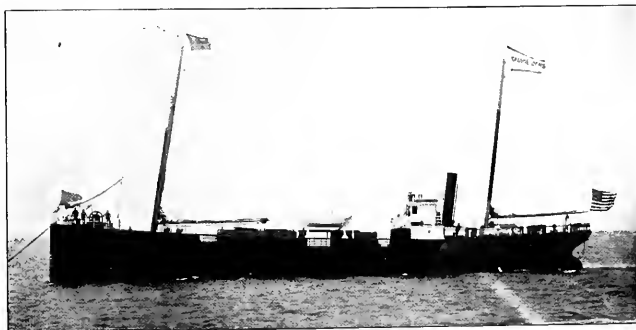
Spedden S.B. Co.: 1 Public Health Cutter, 100'x23'x10' draft.

Commercial Iron Works: 1 light-house tender, 81'x19'x3'8" draft.

Manitowoc S.B. Corp.: 1 Coast Guard Patrol Boat, 165'x25'3"x8'6" draft; 1 lighthouse tender, 112'x29'x7' draft.

Marietta Mfg. Co.: 3 Coast Guard Patrol Boats, 165'; 2 sidewheel dredges, 270'x50'x9'3".

Also mentioned in this report is the proposed construction of a hospital barge to be 140'x28'x11' for St. John's Guild in New York City by the S. B. Mathis Company.



Trade Notes

Freight Office Moves: On September 24, the Hamburg-American Line-north German Lloyd freight traffic department moved its New York office to the third floor of No. 57, Broadway.

Manufacturers' Representatives Reorganizes: On October 1, 1934, the firm of George E. Swett and Company took over the principal account formerly represented by the Western Engineering Company. The same executive management, service and sales personnel will be maintained at the same location of office and stock rooms. George E. Swett is General Manager. Associated with him are Newton P. Selover, Leighton A. Stone, Matt Dillingham, William Cullen, and Doris Cummings. Lines represented include: Warren Steam Pump Company, centrifugal and reciprocating steam pumps; Diamond Power Specialty Corporation, soot blowers; Consolidated - Ashcroft - Hancock Co., Inc., valves, gages, instruments; Kingsbury Machine Works, Inc., Kingsbury thrust and journal bearings; Kimby Pump Company, screw pumps; Ilg Electric Ventilating Company, heating and ventilating apparatus, fans and blowers; Allan Cunningham, deck auxiliaries; Leslie Company, reducing valves and pump governors; Yorkcalbo, aluminum bronze condenser tubes; Brunswick refrigeration; and Carrier air conditioning.

California Ranges for American Ships. The Ingle Manufacturing Company of San Diego, California, reports a good marine business due to shipbuilding. This organization builds the famous Ingle diesel oil-burning galley ranges which have demonstrated their superiority in marine service on naval, coast guard, transport, and merchant ships. Within a short period the company has installed twenty-five ranges on coast guard cutters alone.

The cutters Escanaba, Tahoma, and Onondaga recently delivered to the Coast Guard by the Defoe Boat and Motor Works of Bay City, Michigan, are each equipped with No. 218 Navy Destroyer type Ingle ranges

constructed of Toncan non-corrosive steel. The cutters being built by the Manitowoc Shipbuilding Corporation, the Marietta Manufacturing Company, and the Lake Union Drydock & Machine Works, respectively, are each being equipped with a model No. 130 marine type Ingle range.

During the last week in September the Ingle Manufacturing Company was awarded a contract by the Navy Department for six ranges to be installed in two China patrol gun boats now building. One is being built at the Brooklyn Navy Yard and the other at the Charleston Navy Yard.

Gyros for Queen Mary. The Queen Mary, mammoth Cunard-White Star liner launched yesterday at the yard of John Brown and Company, Clydebank, will not only have a Sperry Gyro-Compass but will also be equipped with the Sperry "two-unit" Gyro-Pilot automatic steering control. This system is rapidly receiving recognition in shipping circles as it may also be used as a hand-electric control of the steering engine. Both automatic and hand-electric steering are entirely independent of a parallel telemotor control.

The equipment for this ship is of British manufacture supplied by the Sperry Gyroscope Company, Ltd., London.

Vox Humana in Excelcis

A newly developed loudspeaker, so powerful that it can magnify the human voice 1,000,000 times, was in operation for the first time at the International Yacht Races where it was used aboard the Coast Guard Cutter Tampa to warn shipping off the course and issue instructions to spectator craft.

While the Tampa was using the new sound projecting device at less than its full power, it was designed by engineers of the Western Electric

Company so that it can be made 500 times more powerful than the ordinary loudspeaker. At full power it hurls sound into the air with the force of a 50-pound hammer blow. Over flat terrain, in still air, it can project intelligible speech a distance of several miles.

The volume produced exceeds the classically loud sounds of nature. The voice can be made louder than a clap of thunder. Measured at the horn's mouth, sound is about 1,000 times louder than the roar at the foot of Niagara Falls.

The new speaker not only carries over distances beyond the reach of existing loudspeakers but will penetrate a din which would drown out the most powerful equipment heretofore available.

Clarity is obtained in spite of the tremendous power due to the fact that the design deliberately sacrifices naturalness by focusing on those frequencies which make speech most readily intelligible and filtering out the other frequencies. This enables the output of the new speaker to pierce through a tumult of other noise and reach ears which already may be carrying a virtually deafening burden of sound.

Use is foreseen for the new speaker in directing throngs of people either too vast or in the presence of too much noise for the ordinary loudspeaker to be heard. Fire fighters within burning buildings, deafened by the crackle of flames, could be directed by the giant voice. A rescuing vessel at sea could below instructions to a distressed crew or to persons in life-boats. In place of the fog horn's simple warning the loudspeaker could give spoken directions.

The horn is made of cast aluminum and aboard the Cutter Tampa is mounted on a swivel mast and can be pointed in any direction. Despite its tremendous power, the system is compact in design and simple to operate, being entirely controlled by a single push button.

*Pacific
Marine Review*

Introducing

A New Firm Name

in Marine Auxiliaries

Of particular interest to the marine industry of the San Francisco Bay area is the announcement recently made by the firm of Geo. E. Swett and Co., engineers, of their appointment as the sales and engineering representative of many of the leading Eastern and Pacific Coast manufacturers of auxiliary machinery and power specialties for use aboard ship.

Abiding faith in the future of California and the position of San Francisco Bay as its principal shipping and ship building center has caused Mr. Swett and his associated companies to set up at San Francisco a marine engineering service that is comparable to any similar organization in the world. The general offices and warehouses are located at 58 Main Street, and include display space, administrative offices, service and light stores departments and a large storage space for heavy machinery.

At the masthead will be the house flags of those manufacturers who have kept pace with the American Merchant Marine and whose products are noteworthy for their quality and dependability. On the newer as well as the older passenger and cargo vessels, naval vessels, ferry boats, tug and work boats, yachts and all manner of floating equipment, can be found representative auxiliaries such as Warren steam and centrifugal pumps, Carrier-Brunswick air conditioning and refrigeration equipment, Allan Cunningham deck machinery, steering gears, air whistles, etc., Kingsbury thrust and journal bearings, Fisher reducing valves and pump governors, Ilg ventilating blowers and Yorcabro aluminum-bronze condenser tubes, and the combined research and engineering facilities of these great companies are at the command

of the ship builder, ship owner and operating engineer.

A service and stores department is maintained and includes the handling of spare parts for pumps, ammonia and CO₂ compressors, condensers, blowers, etc., and Hancock valves, Ashcroft gages, duragages, thermometers, recorder and gage testing and repairs. Competent engineers are available, specializing in the construction and maintenance of cooling and air conditioning of passenger quarters, cargo holds, crews boxes, etc.

The sales personnel is composed of engineers trained in the application of all equipment and specialties handled. Among these are Newt Sel-



Maine shipbuilding stock his heritage—George E. Swett, who heads organization bearing his name, has spent twenty-two years in Pacific power plant field.



George E. Swett & Company, Engineers, hoist a new house flag over the building long associated with marine, industrial power and refrigeration. Conveniently located, the facilities combine display rooms, department offices and warehouse space.

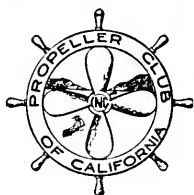
over, Matt Dillingham, William Pullen and Leighton Stone. Doris Cummings is cashier and chief clerk.

George Swett, who heads the company bearing his name, was for many years connected with the Western Engineering Company and needs no introduction to the waterfront of San Francisco or to the marine fraternity of the Pacific Coast.

Swett came to the Pacific Coast in 1912 and has lived in San Francisco since 1920. He is a native of Maine and comes from a family of wooden shipbuilders, and while he was educated as an electrical engineer, his love for the sea and ships dominated all other desires, and we now find him with a sea-going organization whose primary purpose is to serve well the needs of those entrusted with the upbuilding of the American Merchant Marine.

That his ambitions and those of his associates shall be speedily realized is the sincere wish of the publisher and staff of the Pacific Marine Review.

PROPELLER CLUB of California



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● Luncheon Meetings

On October 9 we had the extreme pleasure of hearing Col. B. C. Allin, director of the Port of Stockton, address the club on the subject: "Necessary Elements in Efficient Port Operation and Legislation for Port Benefits." At the meeting, which was presided over by President Harry T. Haviside with Frank DePue as chairman of the day, we had an expert analysis of subjects close to all marine interests. Col. Allin is a forceful speaker—well versed in his subjects.

● Joseph A. Moore Day

"An interesting climax to a story which began a century ago," said West Coast shipbuilder, Joseph A. Moore, in his high-lighted account of the launching of Britain's greatest construction achievement—the Queen Mary.

In a most fascinating way, our distinguished speaker presented details of the mammoth liner's christening . . . "the finest vessel to take the Clyde."

The talk, which was illustrated with "eye-witness" views, assembled by Mr. Moore, brought his audience convincing testimony of the years of careful study in the design and building of this great hull. Her lines are magnificent!

The well-planned program attracted one of the club's finest turnouts. Many men, prominent in civic and maritime affairs, were in attendance, including Governor Frank Merriam, who offered his greetings. The Governor was given a rousing ovation.

● Highlights of the Meeting

Joe Moore literally "knocked 'em off their seats." Two of our club officers were momentarily upset. These high polished floors!

Bill Grant was given a stirring tribute by our speaker. Speaking of

launchings, Bill Grant has some kind of a world's record. He supervised the launchings at the Moore yards in Oakland for over thirty years. Eighty ships in all—including six in one day, back in '19.

—P C—

A Century of Progress all their own for the Cunard Line . . . the realization of Samuel Cunard's dream. In 1840, a 9-knot vessel, two weeks in crossing . . . in 1936, a liner which can clip off 32 knots.

Considerable ship, this 1018 foot monarch. She'll accommodate four thousand passengers. Her beam, 118; her draft, 40.

—P C—

What a thrill to have none other than James Brown, himself, "world's gr-r-r-eatest shipbuilder-r-r-r" walk in on us! To say nothing of his Scotch Symphony orchestra. (See photo for details.)



NEWS !!!

Shipbuilding experts from the Clyde, accompanied by their own symphony orchestra, appear at October 23 meeting, honoring Joseph A. Moore, and TREAT Propeller members*

Scotsman "Broom," with the burr of the Clyde-side, regaled the audience with his dry humor. We say "dry" advisedly. Many a Propeller would have gladly joined in the toast to Her Royal Highness.

And the toast to Harry Gray!

—P C—

● Golfers Ahoy!

The Fall Golf Tournament was another one of those events which are making the Propeller Club of California a grand organization. On Thursday, October 18, under the chairmanship of B. L. "Tote" Haviside, a tourney and banquet were enjoyed by all Propellers who had the good fortune to participate. California Golf Club down Baden was the cruising ground for the sea-going divot-diggers.

Arrangements were handled perfectly, and the entire affair ran off smoothly and with real zest. The committee:

John T. Greany, Vernon Showell, Louis Siverson, Capt. A. DeGuire, Chuck Sprawkins, and Chairman B. L. Haviside.

Here are the winners:

| | |
|--------------------------------|-----------|
| Brace Carter—Low Gross | 83 |
| Geo. Kaufmann—Low Net..... | 89—20—69 |
| First Flight | |
| Winner—Capt. Grover Coates .. | 91—14—77 |
| Runner-up—Bert Anderson .. | 94—16—78 |
| Second Flight | |
| Winner—H. T. Haviside | 93—18—75 |
| Runner-up—J. Greany | 95—18—77 |
| Third Flight | |
| Winner—Ed. Martin | 110—23—87 |
| Runner-up—C. M. LeCount..... | 112—23—89 |
| Fourth Flight | |
| Winner—Capt. E. A. Beeler..... | 99—26—73 |
| Runner-up—A. J. Campbell..... | 103—27—76 |
| First Guest Flight | |
| Winner—J. Beeler | 83—12—71 |
| Runner-up—Lewis Luckenbach .. | 91—18—73 |
| Second Guest Flight | |
| Winner—A. Woerner | 104—25—79 |
| Runner-up—M. Gates | 402—23—79 |
| First Blind Bogey | |
| E. Petersen | 76 |
| Second Blind Bogey | |
| Joe McKeon | 72 |

*to 15 minutes of hilarious fun.

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WEEKLY SAILINGS from Los Angeles Harbor and San Francisco to Honolulu, Yokohama, Kobe, Shanghai, Hongkong, Manila, FORTNIGHTLY to Singapore, Penang, Colombo, and round-the-world ports. FORTNIGHTLY SAILINGS from Manila, Hongkong, Shanghai, Kobe, Yokohama, and Honolulu to San Francisco, and Los Angeles Harbor.

Atlantic - Far East

WEEKLY SAILINGS from New York, FORTNIGHTLY from Boston to Honolulu, Yokohama, Kobe, Shanghai, Hongkong, and Manila. FORTNIGHTLY SAILINGS from Manila, Hongkong, Shanghai, Kobe, Yokohama, Honolulu to New York and Boston.

Transshipment New York

Mediterranean - U. S. A.

FORTNIGHTLY SAILINGS from Alexandria, Naples, Genoa, and Marseilles to New York, Boston, Los Angeles Harbor, San Francisco. Cargo destined Oakland, Portland, Seattle or Vancouver subject to San Francisco transshipment.

Round-the-World

FORTNIGHTLY SAILINGS between Boston, New York, Havana, Colon, Balboa, Los Angeles Harbor, San Francisco, Honolulu, Kobe, Shanghai, Hongkong, Manila, Singapore, Penang, Colombo, Bombay, Suez, Port Said, Alexandria, Naples, Genoa, Marseilles, thence New York.

Trans-Pacific Freight Service

TRI-MONTHLY SAILINGS between Los Angeles Harbor, San Francisco, Pearl Harbor, Guam, Manila, Cavite, Iloilo, Cebu and other ports as inducement offered.

Intercoastal

WEEKLY SAILINGS from New York, FORTNIGHTLY from Boston to Los Angeles Harbor and San Francisco.

FORTNIGHTLY SAILINGS from San Francisco and Los Angeles Harbor to New York.

Cargo destined or shipped from Oakland, Portland, Seattle or Vancouver subject to San Francisco transshipment.

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The Who's Who in San Francisco Ship Circles are being signed aboard for the tenth voyage of that rollicking ship, S.S. San Francisco Steamship Dinner.

Feeder vessels will bring passengers from other Coast ports. The "cruise" ship will be moored as usual in the Gold Ball Room of the Palace Hotel.

The sailing date is November 3—a Saturday night by the calendar. Probably more than 500 merry-making passengers will come aboard.

This issue of P.M.R. will reach you nicely in advance of the big night to bring you another reminder that you—and you—and you will want to sign on.

Here's the ship's personnel working hard for the success of the voyage:

A. L. Zipf, vice-president and manager of Williams Steamship Corporation, general chairman;

Edward H. Harms, assistant operating manager of McCormick Steamship Company, secretary;

The committees:

Finance—K. C. Tripp (North German Lloyd), chairman; Ray Winquist, Zac George, E. F. R. De Lanoy, Harry Ewing, William Kutter, Maj. Ralph Sullivan, and George J. Yater.

Membership—W. C. Empey (The Guide), chairman; H. H. Brann, George Armes, Harvey Huff, Charles L. Wheeler, Dearborn Clark, Captain Walter Gay, and J. Van Meurs.

Entertainment — R. S. Norton (Sudden - Christensen), chairman; Bill Dooling, Cyril Meek, Chr. Blom, A. K. Hulme, T. E. Cuff, P. M. Holway, and H. H. Pearson.

Dinner—Chas. A. Perkes (Pacific Steamship Lines), chairman; M. F. Cropley, A. S. Gunn, James Tyson,

M. J. Wright, R. A. McLaren, W. R. Chamberlin, W. J. Edwards Jr., and John J. Walsh.

Reception — Phil Coxon (Moore Drydock Co.), chairman; Fred Doelker, Capt. K. H. Donavin, J. A. Lunney, R. W. Myers, Geo. K. Nichols, Ash E. Stow, and J. A. Moore Jr.

Honorary operating committee — Past General Chairmen W. J. Edwards, Harry S. Scott, John C. Rohlfs, Hugh Gallagher, Thomas Crowley, Harry Evans, M. J. Buckley, and Ralph W. Bybee.

Publicity—Gene Hoffman (Dollar Lines), chairman; Jerry Scanlon, Wood Peters, and Ben Foster.

Joselyn H. Waterman, Seattle city passenger agent of Matson-Lasoco and Hawaii-South Seas-Australia services, was the guest of W. H. Selander of the San Francisco Matson headquarters at the Foreign Trade Club.

Very attractive exhibits at the Purchasing Agents annual get-together with the S. F. Advertising Club included the displays of several local marine houses.

Manning the Tubbs Cordage Company booth were Herman D. Nichols, vice-president, who has a substantial leaning for things nautical, and R. Lin-Killick of the Tubbs selling staff. The display included twine and cordage products manufactured in San Francisco.

Speaking of Mr. Herman D.—he was telling us about Jack Young's departure for the Islands with the Crowley boat in tow of the sea-going tug, Mamo. Jack's son, who is a licensed skipper, went out as mate. Jack received a parting salvo from

local waterfronters and don't worry too much if he was the target for some good-natured ribbing—"on account"—Jack can dish it out as well as take it.

We were sorry Jack couldn't stay over for the Propeller Club's golf tourney. He gets a great kick out of meeting the lads—and they, in turn, rate him as a prince of good fellows.

Ed Fleming, who covers the waterfront (and adjacent territory) for General Engineering and Supply Company, stopped us in the Palace lobby to tell us this one—our best story of the month:

One of the boys in the black-gang says to his shipmate: "Why don't you give that dame of yours the air? Every guy in Pedro has been out with her!"

"I dunno," says the other, "she's a pretty nice kid.... Besides, Pedro ain't such a big place."

Which reminds us, as per usual, of the gob who said to his buddy, as he was writing a letter to his current sweetheart: "Hey, sailor, take off yer shirt. I wanta see how you spell Geraldine!"

• Los Angeles News of the Month

Charles S. Robbins, "Robbie" to scores of passenger men, has signed up with the Los Angeles passenger office crew of General Steamship Company. He was formerly with the Admiral Line.

W. O. Lee joined the Williams, Dimond & Company staff during October. He'll sign up freight movements for the Quaker Line and the California-Eastern Line.

The War on Electrolysis

An interesting report has been received from Mr. S. V. Massimini, president of the Gulf Engineering Service & Specialty Co., Inc., of New Orleans, concerning the installation of Marine Electrolysis Eliminators in the fleet of turbine steamers of the Mississippi Shipping Company, operating between the Gulf and South Atlantic Ports.

In June, 1933, the company equipped the S. S. Delnorte with a set of Eliminators, to correct continued damage, caused by electrolysis attacking condenser tubing. After six months service, Mr. C. M. McKenzie, port engineer, was so favorably convinced of the value of the Eliminators, that he ordered the sister ship, Delsud's condenser equipped. Reports from the Mississippi Shipping Company, received recently through Mr. Massimini, indicate that this vessel likewise responded to the corrective effect of the Eliminator circuits and now the company is contemplating equipping the fleet of ships with Eliminators.

The Delnorte developed serious tube failures when she was but a year old and nothing seemed to correct this condition until the Eliminators were installed.

The Delnorte, and her three sister ships, the Delsud, Delmundo, and Delvalle, are equipped with special oversize Ingersoll Rand condensers, General Electric turbines and reduction gears. These have all recently been reconditioned, passenger quarters enlarged and the speed stepped up from 10 to 13 knots.

Meanwhile, in Seattle the Andrea Luckenbach (the largest vessel of the Luckenbach Fleet) was at Todd's for voyage repairs in October, and upon opening her port condenser, which was equipped with Eliminators eight months ago, no further damage to tubes was noted, while her starboard condenser had developed frequent tube failures, presumably due to the fact that no Eliminators were used. Full details will be released later by their New York office and reported in Pacific Marine Review.

Roy V. Crowder of the Grace Line tells us that the Santa Lucia, eastbound early October, will enter on her next voyage, the New York-West Coast of South America service.

The Grace Line, Mr. Crowder reports, is finding passenger and freight business decidedly on the increase with fall bookings considerably better than the corresponding three-month period a year ago. For this reason, the intercoastal schedule will be maintained at full strength.

● Leader Is Mourned.

As we go to press the Pacific shipping and lumber fraternities are bereaved by the passing of Alfred F. Harms, first vice-president of McCormick Steamship Company.

From an humble beginning in the employ of Pope and Talbot Lumber Company, Mr. Harms, after twenty-seven successful years, was named first vice-president of the McCormick Steamship Company when the two concerns were consolidated.

The career of this leader of a great industry might well be the torch for the youth of today—a career which this beloved figure wrought from his own toil, study and kindly tolerance of his fellows.



5 Island-Days in 2 WEEKS' Round Trip

Ships that add lustre to everything — route, speed, diversions. Destination . . . Hawaii, the perfect spot for leisure hours. Take a mid-Pacific holiday *this month*.

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To Hawaii, Samoa, Fiji, New Zealand, and Australia. 46 days, 17,000 miles. Personally escorted, all-inclusive-low-cost. Cruise ships—"MARIPOSA" and "MONTEREY". Shore excursions at all ports (except ports of departure) both going and returning. Fares from \$595 First Class, \$450 Cabin Class. Entertainment and shore excursions included.

Final sailing at these low summer Round-Trip fares: S.S. Mariposa from San Francisco, August 21; from Los Angeles, August 22.

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We are indebted to **Henry Foss** of the Foss Tug and Barge Company, Tacoma, for this view of the new tug "Arthur Foss. She is the ex-steam tug "Wallowa," used in filming the picture "Tugboat Annie," completely re-built for towing in the Straits of Juan de Fuca and in the Pacific from Washington to Southern California. Her equipment includes a 6-cylinder, 700 h.p. Washington diesel engine; a long range radio; a large electric refrigerator; oil fired steam heat; and both a belt driven and a 7 h.p. Bolinders auxiliary diesel generating set; as well as a 4-bladed Dorn

bronze propeller, geared driven towing winch off the main engine shaft, a powerful Sperry searchlight, a special system which enables her to burn boiler fuel after the main engine is warmed up, a Cunningham whistle, and pneumatic steering gear. She has a capacity for carrying fuel, oil, water, and supplies for 1,000 hours continuous duty at sea.

Officers' quarters are aft of the pilot house, which extends to the full width of the upper deck, thus affording a fully enclosed bridge deck with full visibility of the tow from inside the closed pilot house.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS OF AUGUST 24, 1912

Of Pacific Marine Review, published monthly at San Francisco, California, for October 1, 1914
State of California, County of San Francisco

Rubio, my Fifth Precinct, Notary, in and for the State and county aforesaid, personally appears Bernard N. DeRoche, who, having been duly sworn according to law, deposes and says that he is the Business Manager of Pacific Marine Review, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 411, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor and business managers, are:
Publisher, Jas. S. Hines, 500 Sansome Street, San Francisco, California.

Editor, Alex J. Dickie, 1036 Mariposa Avenue, Berkeley, California.

Managing Editor, None.
Business Manager, Bernard N. DeRoche, 737 Contra Costa Avenue, Berkeley, Calif.

2. That the owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding one per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a firm, company, or other unincorporated concern, its name and address as well as those of each individual member, must be given.)
Jas. S. Hines, Owner.

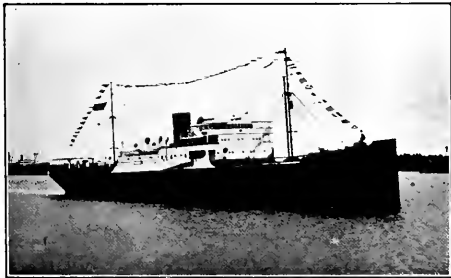
3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state.) None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest, direct or indirect, in the stock, bonds, or other securities than as so stated by him.

Subscribed and sworn to before me this 28th day of September, 1914.

Edith Goochey
(My commission expires November 22, 1916)

Condenser Tube Failure Eliminated



T.S.S. DELNORTE

Of the Mississippi Shipping Company's fleet operating out of New Orleans in the Gulf-East Coast South America Service. One of two sister ships equipped with Marine Electrolysis Eliminators.

MR. SHIPOWNER: Which Costs the Most—inexpensive Eliminator Cores or costly shafting, condenser tubing, propellers and manifolds???

Gulf Engineering Service and Specialty Company, Inc.

522 POYDRAS STREET

S. V. Massimini, President

NEW ORLEANS, L.A.

Gulf States Representatives for
Marine Electrolysis Eliminator Corp., Colman Dock, Seattle, Wash.

MISSISSIPPI SHIPPING COMPANY'S

S.S. DELNORTE and S.S. DEL SUD

... have their condensers equipped with MARINE ELECTROLYSIS ELIMINATORS in order to check costly tube failures.

So successful has been the results of applying this simple system to check costly electrolytic destruction of power plant equipment, the Mississippi Shipping Company plan equipping their entire fleet.

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under the
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IT IS significant that from the new and palatial Manhattan down to the oldest of sea-worn trawlers the ship that is Mackay Radio equipped gets radio apparatus that is new, modern and in line with the latest approved development of a fast moving art. Mackay Radio has no old equipment for sale or lease!

Mackay Radio, in addition to manufacturing and installing up-to-the-minute radio equipment, inspects, repairs, maintains and replaces apparatus as need arises. Mackay Radio also supplies competent radio operators, handles radio accounting and in fact, takes care of every detail of shipboard radio communication service.

The ship that is equipped or operated by Mackay Radio becomes part of a giant communication chain that stretches around the world. It includes not only Mackay Radio with its eight powerful and strategically located radio stations but Postal



S.S. MANHATTAN and her sister ship, the Washington, Mackay Radio equipped throughout. (Left) Kolsler Radio Direction Finder built and installed by Mackay Radio.



Stanley W. Finnan, Chief Radio Operator, Steamship Manhattan

Manhattan's equipment includes three powerful transmitters, two receivers for regular communication, an emergency transmitting and receiving set and specially designed sets for her two motor life boats.

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A Mackay Radio representative will be glad to tell you more about Mackay Radio Marine Service. Just communicate with Mackay Radio headquarters or any branch office and a representative will give you full information.

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● Treasure Lure for Salvors

An exceedingly interesting story which will appeal to deep-sea and shore-side sailormen alike appears in the latest issue of the Fireman's Fund Record. It details the salvaging of the rusted and barnacle covered hulk of the Islander raised after thirty-three years on the floor of the ocean.

This 240-foot craft, once the pride of the Canadian Pacific Line in the Skagway service, set sail on August 14, 1901, with 125 souls aboard, most of them returning with their Klondike fortunes. The Islander sank off Taku Glacier. One hundred and ten men survived. Through the courtesy of Mr. Stanley Pearce of Fireman's Fund in San Francisco, we bring excerpts to our readers:

"Wild rumors were circulated as to the amount of treasure actually on board; salvage expeditions were organized and eventually located the wreck, but for many years the tremendous depth of water successfully barred the way.

The steamer Griffson and the barkentine Forest Pride were used to float the Islander, assisted by scows equipped with apparatus for servicing divers.

It is one of the deepest salvage

jobs on record. The Taku Glacier was only 15 miles away, and the cold and depth of water made the work of the divers extremely difficult and dangerous. Underwater operations were in charge of Chas. W. Huckins, of Seattle, and hundreds of descents were made.

Searching for the wreck and locating the treasure, which the constant motion of heavy masses of water had piled up with sand, was no easy task, and called into play their expert knowledge of diving; in addition it took coolness and courage in those lonely depths to face the discovery that a long, sinewy tentacle of an octopus was winding itself around an arm or leg. Dozens of these tentacles suddenly appeared out of the darkness, and from this mass of waving danger the hideous nightmare of the eyes and face of a devil-fish loomed up. Many such battles were fought and won on the floor of the ocean, and many are the tales that these divers could tell of hair-raising life-or-death encounters.

Tediously and almost with monotony, loops of 1½-inch steel cables were lowered to the bottom, only to be snagged under the keel of the wreck until finally they were worked into proper position. Twenty loops

were adjusted, and attached to a massive bridge of reinforced logs, the ends of which rested on the decks of the Griffson and Forest Pride; and at each high tide the Islander was slowly shifted toward shore.

Great was the rejoicing when the surface of the water was at last broken by a rusted hulk, with sheared-off bow and deck crushed, covered with barnacles of enormous size and masses of sea growth. At low tide it rested high and dry on the beach of Green's Bay, Admiralty Island.

And the treasure? The salvors have little to say. One report said that a small amount of gold was found in one of the staterooms. A more recent dispatch from Juneau stated that the debris of decades, from the wreck of the Islander, has been sluiced for gold and an additional amount (according to rumor \$90,000) recovered, but no official announcement was made.

Salvage operations have cost an estimated total of from \$200,000 to \$500,000 to date.

Some say that the severed portion, which still lies in approximately 190 feet of water about 2000 feet from shore, and which the salvors are now planning to recover, contains the strong boxes. If so, the final chapter of the story is still to be written."

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THE FEDERAL-PROTECTED FLEET includes every type of vessel—the latest addition being the *Santacruzement*, which has recently been placed in service by the Santa Cruz Cement Company of Santa Cruz, Calif.

This vessel was extensively reconditioned and converted into a cement carrier by the Sun Shipbuilding and Dry Dock Company. It is 414 feet overall, and is capable of carrying 40,000 barrels of cement.

To provide complete protection, FEDERAL COMPOSITIONS AND PAINTS were used throughout the vessel, inside and out, from keel to truck.

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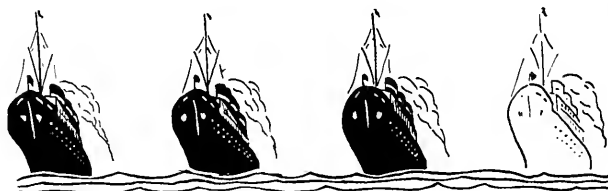
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DECEMBER

1934



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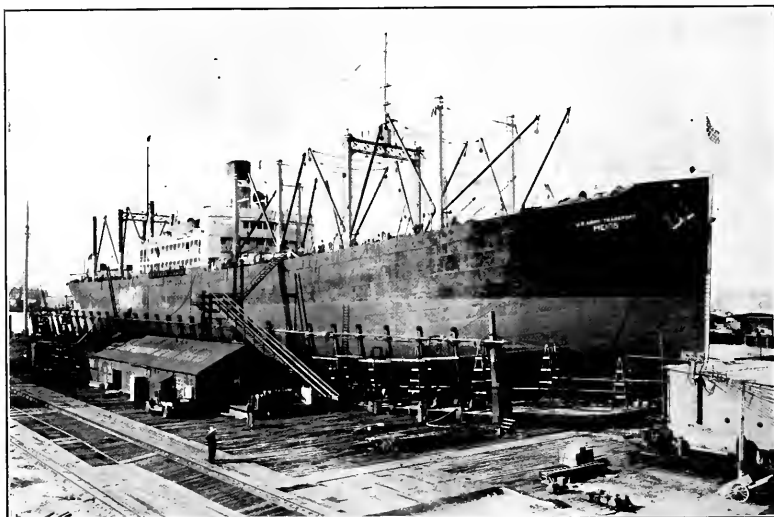
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THE PORT OF OAKLAND . . . AT THE GOLDEN
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MOST MODERN ON THE PACIFIC.

CLYDE SUNDERLAND, PHOTO.



General Engineering & Dry Dock Company



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A resin-glued plywood—as used on
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For strong, light and fire-resisting
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Combining the strength and fire-re-
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PHOTO BY CLYDE SUNDERLAND, OAKLAND, CALIF.



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Pacific Marine Review

VOLUME XXXI

DECEMBER, 1934

NUMBER 12

Editorial Comment » » »



Ports of the Pacific Coast

THERE is great need for coordinated planning in the design of terminals, the layout of harbors, and the operation of ports in all three of the Pacific Coast states. This is particularly true of the three great natural waterways to the interior which serve these three states. We refer to San Francisco Bay and its river systems, the Columbia River, and Puget Sound. Each of these waterways has a large number of going port projects, and a larger number of potential port projects. It would seem to be common sense that each of them should have a carefully selected commission whose scope and powers would be wide enough to cover the coordination of all port planning within the district served by each waterway. In each case this would have to be a State commission, because of conflicting county and city jurisdictions, and in the case of the Columbia River it would have to be an interstate commission. Such commissions could provide intelligent leadership in economic planning to produce a coordinated port system

that would adequately serve the entire district without overlapping waste.

Merchant Marine of America in 1934

The 24,904 documented merchant vessels in the United States merchant marine on June 30, 1934, were engaged in twenty-four different services, according to a detailed compilation prepared by the statistical section of the Department of Commerce's Bureau of Navigation and Steamboat Inspection, and made public by J. B. Weaver, director. These vessels totaled 14,861,834 gross tons.

Of all the trades and services represented, the report shows freighting to be the greatest, engaging 8,624 vessels of 8,886,944 gross tons. This classification comprises 1,807 steam vessels of 6,783,226 gross tons; 1,960 motor vessels of 339,149 gross tons; 765 sailing vessels of 394,611 gross tons, and 4,092 unrigged vessels of 1,369,958 gross tons. Freighters accounted for 34.9 per cent of the total number of vessels in the merchant marine and 59.7 per cent of the gross tonnage.

Fishing was second in the number of vessels employed. There were 5,867 fishing vessels of 298,385 gross tons employed at the close of the last fiscal year. Of this number, 254 were steam vessels of 83,995 gross tons; 4,958 vessels of 146,696 gross tons were motor ships; 55 sailing vessels of 19,185 gross tons; and 600 unrigged vessels of 48,509 gross tons.

From the viewpoint of tonnage, however, tank ships rated second with a total of 751 vessels of 2,673,-

707 gross tons. In this service, steam vessels were in the majority with 325 vessels of 2,132,616 gross tons. Motor ships totaled 169 of 346,140 gross tons; sailing vessels 36 of 67,650 gross tons; and 221 unrigged vessels of 127,301 gross tons, the report shows.

Passenger vessels were third from a tonnage standpoint with a total of 2,944 vessels of 2,008,558 gross tons; steam vessels in this class showed the greatest tonnage, employing a total of 641 vessels of 1,908,298 gross tons, while motor vessels were the most numerous with 2,181 vessels of 90,257 gross tons. Only 12 sailing vessels of 1,528 gross tons were reported as passenger vessels, and 110 unrigged vessels of 8,475 gross tons were so classed.

The towing service employed 1,790 steam vessels of 273,031 gross tons, and 1,678 motor vessels of 60,333 gross tons, a total of 3,468 vessels of 333,364 gross tons.

None of the other trades compared favorably with these first five services, either in number of vessels or tonnage employed.

World Shipbuilding, 1934

Lloyd's latest returns show vessels under construction in the shipyards of the world for the quarter ending September 30, 1934. The total records 296 vessels with an aggregate gross tonnage of 1,311,387. These vessels include 125 steamers with 542,338 gross tons and 162 motorships with 764,909 gross tons. This total shows a healthy growth in world shipbuilding, being 95,047 tons larger than that of the quarter ending June 30, 1934, and 554,635 tons

Ships of Many Types and Flags at Port of Oakland



Top to bottom. At left: S.S. Robert Adair and M.S. Wyoming, S.S. Golden Hind, M.S. Hardanger, and M.S. Washington. At right: Stern wheel steamboat Pride of the River, M.S. Sally Maersk, Grace Line Santa Elisa, and M.S. Winnipeg. In center: Auxiliary schooner Hidalgo, California Schoolship S.S. State of California, and U.S. submarine Bonita.

tunities to advance the interests of the City and add to the facilities and the prestige of the Port.

It acquired land by purchase and developed an 850-acre airport that has brought international recognition and fame, and great advertising value to the city. It constructed a terminal facility at the foot of Webster Street, especially designed for inland waterway carriers. It provided an adequate public yacht harbor at the foot of 19th Avenue.

It is a matter of justifiable pride to the commissioners of the port and to the city, with all this extra work accomplished, that out of the original \$9,960,000.00 bond issue, there still remains unexpended \$1,233,000, which is being reserved for new improvements.

This record in construction was made possible through efficient management assisted by competent engineering and legal supervision.

● World Port Status Won For Oakland

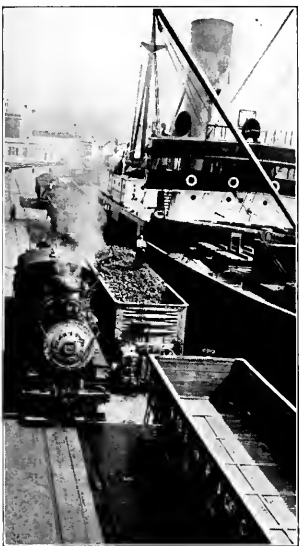
During the last seven years of the Port of Oakland's history, the commerce of the port has undergone a marked change. Prior to the administration of the harbor by the Board of Port Commissioners, Oakland was purely a local port. The cargo passing over its piers consisted largely of bulk commodities, such as lumber, petroleum products, sand, and coal. No foreign steamship lines were calling there on regular schedule and — in fact — published sailing schedules for coastwise and inter-coastal lines serving this port were rare. There are now 15 foreign steamship lines, 13 intercoastal lines, two gulf services, and 10 steamship lines in the coastwise trade serving the Oakland Municipal Terminals alone on regular published schedule. The products handled at these terminals consist mainly of dried fruits, canned goods, dairy products and equipment, and manufactured articles in addition to the bulk commodities which previously made up the chief articles shipped through the port. Oakland has now, in short, definitely become established as a world port, handling a wide variety of high grade cargo.

● Increased Tonnage

In addition to this improvement in



Depressed railroad trackage between transit sheds and adequate carloading platform area are features of Oakland pier design, as shown above. For handling bulk cargo direct to railroad cars there are ship side tracks as illustrated in the scene below, showing coke being handled from steamer's hold to gondola cars on the dock.



the character of cargo handled, the Oakland Municipal Terminals have enjoyed a constantly increasing tonnage volume ever since the Board undertook the direct operation of city-owned facilities in 1928. During the first six years, the annual tonnage handled at the municipal facilities more than doubled. Actually the 1933 tonnage figure showed an increase of 107 per cent over that of 1928. Here are the figures:

| | |
|-----------|--------------|
| 1928..... | 316,377 tons |
| 1929..... | 367,304 " |
| 1930..... | 445,311 " |
| 1931..... | 479,773 " |
| 1932..... | 534,627 " |
| 1933..... | 656,334 " |

It will be noted that these six years cover the worst period of the world's greatest depression. This remarkable increase during such a period shows that the sound business policy pursued by the harbor commissioners of Oakland has found increasing favor with shippers of cargo.

● Payroll Benefits

This sound business management of the Port has brought to Oakland a considerable payroll, not only in the way of construction labor, but also in attracting many industries to a permanent location in Oakland. There is also the regular payroll incident to port operation. The beneficial manner in which this policy works out is illustrated by rather striking examples:

(1) The Outer Harbor Terminal. At this unit of the port, a survey made shortly before the recent longshoremen's strike revealed that there were only 47 employees on the municipal payroll at this port facility, whereas approximately 500 persons were employed by privately operated business establishments which are located at this terminal and which are dependent on the terminal facilities for the conduct of their respective businesses.

(2) The Oakland Airport. At this unit, the Port Commission has built facilities and leased them to private operators with such success that whereas only 8 persons at the airport are on Port Commission payroll, there are 196 citizens employed by the air transportation companies,

usually earlier and cheaper than cargoes transhipped enroute. Before the war, cargoes destined to the Atlantic Coast were largely controlled in, and transhipped through, a British port. Even after direct American ship services were started, it often took one or two years for American ships to secure cargoes destined for America, as the conferences controlled the cargoes by deferred rebates and contracts. In some cases it took drastic action on the part of the Shipping Board to force the issue. The Egyptian cotton case was a noted example of the strength of deferred rebate conferences.

Our war-built Shipping Board ships were assigned to various trade routes in 1919. They were fairly well established by the end of 1920. In 1920 and 1921 our passenger ships were assigned to their respective routes.

The following figures in values, showing a remarkable growth, can in the main be credited to the quick assignments and generally well operated American ships, which were handled in foreign ports by well trained, energetic and enthusiastic young Americans, who scoured the markets for business for these American ships. Mistakes were made, but on the whole these American pioneers in the foreign field performed well, and made a good showing in their assignments. Many of these young pioneers are still abroad and are now training younger Americans to carry on. It was no easy task. In Kobe, Japan, I had as many as thirteen ships in port before I could find an office or secure a local staff. The family had to be routed out early and the hotel room used as an office.

Besides the direct American ships there were other contributing factors. Exchange generally was favorable. There was a lack of goods due to the Great War. Belligerents were forced to sacrifice foreign commerce to manufacture war material. Germany had been displaced. And funds were ample. But without ships to transport our goods we would have been badly handicapped.

● China Trade

China, Russia and Latin America now need both our goods and our ships. Africa and the Levant can

only be built up for American foreign commerce by having direct service with American ships. Exports to China in 1910-1914 averaged 31.4 million dollars per year; from 1926 to 1930 averaged 134.6 million dollars per year; and 1928—165.9 million dollars. This is a gain of over 500 per cent.

Imports from China 1910-1914 averaged 38.5 million dollars per year; 1926-1930 averaged 155.9 million dollars per year; 1928—156.5 million dollars; and here is a gain of over 400 per cent.

When we consider the civil disorder, instability, exchange fluctuations, fierce commercial competition and the low purchasing power of the Chinese in particular, and the far east population in general, this growth has been remarkable. It is a fascinating study as to trade possibilities when stability political and stability economic is reached, when primitive transportation is overcome and when the standard of living is raised. To drive this home, remember that China with more than 400 million population, and India with more than 350 million population, import in value only what the Netherlands with only 8 million population imports.

No wonder Lord Palmerston exclaimed:

"To control the Pacific is to control the world."

And William H. Seward in 1853:

"Who does not see, then, that during every year hereafter European thought, European activity (although actually growing in force), and European connections (although becoming more interesting), will nevertheless sink in importance; while the Pacific Ocean, its shores, its islands, and vast region beyond, will become the chief theatre of events in the world's great hereafter?"

And Captain Robert Dollar:

"Just as sure as the center of commerce shifted from the Mediterranean to the Atlantic, so sure will it shift to the Pacific Ocean. When this takes place, the right to this commerce belongs to the United States and Japan, as we are on its shores."

Importations and exportations bear this out:

Imports from Europe 1928-

1929 increased 169 per cent over 1910-1911.

Exports to Europe 1928-1929 increased 184 per cent over 1910-11.

Imports from the far east 1928-1929 increased 563 per cent over 1910-1911.

Exports to the far east 1928-1929 increased 806 per cent over 1910-1911.

● Far East Trades

In line with the China figures we have for the far east:

Exports 1910-1914 averaged 166.2 million dollars per year. 1926-1930 averaged 740.6 million dollars per year; 1928—822.6 million dollars. A gain of 490 per cent.

Imports 1910-1914 averaged 262.2 million dollars per year; 1926-1930 averaged 1,180.6 million dollars per year; 1928—1,301.8 million dollars. A gain of 496 per cent.

British, Scandinavian and Dutch owners have entered this route since the American direct ships have built up this trade. At this writing a rate-cutting campaign is on that is discriminatory and wholly inimical to the operation of American ships in this vital link of American foreign commerce. They are operating economical and speedy so-called "cargo" liners. These are usually motorships, built in foreign yards at costs far below American costs. They are manned by foreign crews at wages below American wages and their repairs are done abroad, while the very minimum of supplies are purchased in America. Most of these ships are in an indirect trade where they seldom, if ever, touch ports of the country of their flag. Yet, as we have seen, when times of stress occur, these ships have been and may again be, lifted out of the trade, to leave the American shipper without adequate means of transportation.

There is, therefore, a good reason for Cheh Meng, associate director of the China Institute in America, to say:

"We sincerely hope that the American people will continue building bridges across the Pacific."

There are others as fully alive to the importance of the far east markets. The Japanese, under their ship-building bounty program, have — since 1931—constructed and entered in the trans-Pacific trade, forty new

motorships with speeds ranging from 16 to 18¾ knots. They are in a cargo liner class. American ships now secure less than 10 per cent of silks moving from Japan to the United States. The Japanese government-fostered program of subsidized vessels and subsidized silk industry, together with the Japanese government enforcing the slogan "Ship by Japanese Vessels" has proved its effectiveness.

The anticipated increase is from 5 per cent to 10 per cent per year in the American far east markets. For the first nine months of 1934, the United States took 18.15 per cent of all of China's exports and supplied 27.22 per cent of all of China's imports. With stabilized exchange and revival of trade there will undoubtedly be an increase in these percentages.

Other trades, wherein American ships were entered to serve directly, show a similar remarkable growth of American foreign commerce:

To and from Africa:

Exports: 1910-1914 averaged 24.6 million dollars per year.

1926-1930 averaged 109.6 million dollars per year.

1929—130.5 million dollars.

An increase of over 500 per cent.

Imports: 1910-1914 averaged 22.6 million dollars.

1926-1930 averaged 91.2 million dollars per year;

1929—108.6 million dollars.

An increase of over 480 per cent.

To and from Latin America:

Exports: 1910-1914 averaged 302.2 million dollars per year;

1926-1930 averaged 851.0 million dollars.

1929—972.9 million dollars.

An increase of over 320 per cent.

Imports: 1910-1914 averaged 435.5 million dollars per year;

1926-1930 averaged 1,006.2 million dollars.

1929—1,106.9 million dollars.

An increase of over 254 per cent.

Due to the world depression we have, of course, lost a lot of the ground we had gained. In the African trade we have held our own, purely by having our own ships. In the far east we have also held our own.

● American Commerce With No Direct American Ships

Before the war, Argentina was in

Mail Contracts

There is a general misconception of the term "mail contract." It is that and a great deal more. The government specifies:

1. Contractor must be American.

2. Trade route and ports of call to be made without deviation.

3. Frequency of sailings and arrivals.

4. Class and tonnage and speed of vessels.

5. Time within which new vessels must be built.

6. Ships must be American built, owned and operated.

7. Vessels must be constructed according to plans and specifications approved by the Secretary of the Navy, with particular reference to economical conversion into an auxiliary naval vessel (or Army transport).

8. Two-thirds of crew to be American citizens.

9. Required number cadets for training to become officers to be carried.

10. Mails, both United States and foreign, in transit, to be carried in a safe and secure manner, with penalties attached, covering all kinds of mishaps.

11. Furnish staterooms, subsistence and suitable mail rooms for a sea post office and postal employees. Also to furnish first class transportation for post office officials traveling on official business.

12. Contractor subject to all provisions of postal laws applicable to the particular service.

13. Contractor to furnish surety bond.

14. Specific payments per mile based upon class, type, size and speed of vessels.

15. In addition to above the owners universally encourage officers and crew to enter the Naval Reserve service.

the market for fifty locomotives. British lines served both American-Argentine and English-Argentine. The distance from Liverpool to Buenos Aires is 6258 miles; from New York to Buenos Aires it is 5850 miles. The British lines made a \$3.00 per ton lower rate from England. England got the contract.

In 1915 a large order was in the market for cement. Samples of American cement were sent and found superior. The order was placed in America. No American ship was available. European lines raised rates from America. The order was cancelled and Europe supplied the cement.

Now that American ships ply regularly between American ports and far off foreign ports of all the great seas, carrying American commerce and American passengers, there are American manned branch houses in all the leading ports of the world. These American branches are in the front ranks. They are today fighting for the world's business. This eventually means prosperity to us here at home.

● American Foreign Commerce

Nearly nine-tenths of our total commerce is within our own borders. That other one-tenth, as represented by foreign commerce, is vital to our prosperity. It is what keeps our factories going twelve months instead of six months. It takes up the surplus production of our farms and orchards. It is essential to our well-being. It must be protected. There is nothing modest about our foreign commerce. It is done in amounts exceeding billions of dollars and millions of tons annually.

| | | |
|--------------|------------|---------------|
| 1791 to 1800 | average \$ | 106,000,000 |
| 1871 to 1875 | " | 1,080,000,000 |
| 1901 to 1905 | " | 2,426,000,000 |
| 1911 to 1915 | " | 4,083,000,000 |

These and the following figures must be read with a discerning mind. They are eloquent. At first glance the above figures can truthfully be interpreted to show that our foreign trade grew in spite of our not having an adequate American merchant marine to serve our needs. A study of the figures after the World War reveals a very different picture and leads one to ponder what may have been the result had we kept on protecting and developing our merchant

marine in the same manner and to the same extent that England developed her commercial fleet. Our ships gave us the opportunity. We have the business. Our national aspirations demand that we keep it, and build upon the foundations laid. We are a nation of high-speed manufacturers. Our population demands the best product possible. We do, therefore, produce a superior article. We do not usually produce a cheap or shoddy article for purely export purposes. Our export of manufactured goods is mainly of the same quality used here. Herein lies our strongest export appeal. When stability is again reached we shall regain our foreign trade, particularly if we maintain the standard of our product and furnish an adequate American merchant marine operating with regular frequency.

We generally export from 50 to 60 per cent of our cotton; 25 per cent of our wheat; 60 per cent of our lard; and 15 per cent of other pork products. Lately there has been a decided shift in our exports:

1910-1914

Raw materials and foodstuffs 53.3%
Manufactured articles 46.7%

1929

Raw materials and foodstuffs 38.6%
Manufactured articles 61.4%

Please note that change. It is important to our further study. Since the world depression set in, manufactured articles in the luxury class have declined nearly 80 per cent in our exports. But the market has been built up, and the trade will come back.

With this introduction we may examine the value of our export and import figures year by year since 1915. The volume is also very interesting, so I show this from 1922. Bear these facts in mind:

1915 to 1918—World War.

1918 to 1921—Start and establishment of our American ships in world trade.

1921 to 1922—Mild World Depression.

1930 onward—General world economic collapse.

The following figures show our entire foreign trade in millions of dollars:

| | Exports | Imports | Total |
|------|---------|---------|-------|
| 1915 | 2,769 | 1,674 | 4,443 |
| 1916 | 5,483 | 2,392 | 7,875 |
| 1917 | 6,234 | 2,952 | 9,186 |

| Inbound | Grand Total | American | British | Other Foreign |
|----------|-------------|----------|---------|---------------|
| 1923 | 982,017 | 107,003 | 271,732 | 272,283 |
| 1924 | 723,964 | 61,413 | 163,297 | 163,533 |
| 1925 | 830,302 | 69,858 | 210,224 | 190,707 |
| 1926 | 886,433 | 71,800 | 207,070 | 244,512 |
| 1927 | 923,171 | 76,610 | 215,090 | 271,823 |
| 1928 | 969,675 | 73,731 | 205,990 | 282,124 |
| Outbound | | | | |
| 1923 | 528,768 | 43,227 | 114,452 | 106,411 |
| 1924 | 684,096 | 47,234 | 148,869 | 160,255 |
| 1925 | 732,151 | 53,155 | 153,797 | 171,384 |
| 1926 | 728,092 | 54,634 | 152,596 | 180,857 |
| 1927 | 786,774 | 62,987 | 168,956 | 215,962 |
| 1928 | 829,559 | 61,259 | 160,193 | 216,384 |

The first column on this table shows the total foreign borne passenger traffic, which includes Canada, Mexico, and West Indies, as well as overseas. The next column shows overseas only, with American, British, and other foreign vessels carrying. In the Canadian trade, American vessels in the six years from 1923 to 1928 inclusive carried an average of 29.0 per cent. In the middle American field, American vessels carried about 66 per cent; and in the purely overseas trade, American ships for 1928 carried an average of 13.5 per cent.

| | | | | |
|------|-------|-------|--------|---|
| 1918 | 6,149 | 3,031 | 9,180 | By value about 70 per cent. |
| 1919 | 7,920 | 3,904 | 11,824 | Imports |
| 1920 | 8,228 | 5,278 | 13,506 | By volume about 54 per cent. |
| 1921 | 4,485 | 2,509 | 6,994 | By value about 70 per cent. |
| 1922 | 3,832 | 3,113 | 6,945 | Our volume of foreign business |
| 1923 | 4,167 | 3,792 | 7,959 | was imposing. Following are the figures |
| 1924 | 4,571 | 3,610 | 8,201 | in thousands of long tons (2240 |
| 1925 | 4,910 | 4,227 | 9,137 | pounds each): |
| 1926 | 4,809 | 4,431 | 9,240 | Exports Imports Total |
| 1927 | 4,865 | 4,185 | 9,050 | 1922 43,479 36,776 80,255 |
| 1928 | 5,128 | 4,092 | 9,220 | 1923 46,805 46,151 92,957 |
| 1929 | 5,241 | 4,399 | 9,640 | 1924 49,122 42,750 91,872 |
| 1930 | 3,843 | 3,061 | 6,904 | 1925 51,972 41,036 93,008 |
| 1931 | 2,424 | 2,091 | 4,515 | 1926 50,593 43,589 94,182 |
| 1932 | 1,611 | 1,323 | 2,934 | 1927 71,030 42,408 113,439 |
| | | | | 1928 55,459 43,785 99,244 |
| | | | | 1929 60,457 50,802 111,260 |
| | | | | 1930 54,709 49,844 104,554 |
| | | | | 1931 44,267 41,883 86,150 |
| | | | | 1932 37,017 34,695 71,712 |
| | | | | 1933 30,144 23,285 53,429 |

Just to visualize the magnitude of this business, let us run the 1920 figure, the peak year, out to its full length—\$13,506,497,000.00.

Surely that prospective volume of business is worth protecting! For 1920 it meant that we did a foreign business per capita, or for every man, woman and child, of \$121.86. That is what brings prosperity to our people. Raw materials are imported; manufactured articles and produce are exported.

● A 30-Year Average

But let us look at some averages in full length.

| | |
|-----------------|--------------------|
| 1911-1915 | \$4,082,858,000.00 |
| 1915-1920 | 9,879,545,000.00 |
| 1921-1925 | 7,847,129,000.00 |
| 1926-1930 | 8,810,782,000.00 |

If we average the above we have an average foreign business of \$7,655,078,500.00 for each year for thirty years. Surely that is a business worth striving for!

From 1929 to 1933 we had a decrease in business:

Exports

By volume about 50 per cent.

It is estimated that the entire world commerce carried by seagoing vessels in purely foreign trade amounts to between 250 and 300 million tons. It is no wonder, therefore, that the ocean going commerce of the United States averaging 95 million tons for the past 12 years is considered the greatest international prize in the entire commercial world. It is our duty to protect and foster this business for ourselves and our posterity. It is our duty to see to it that no other nation's ships can dictate rates and conditions under which this commerce is to be done and carried. It is our duty to furnish suitable and adequate tonnage to handle at least 51 per cent of this commerce. Furthermore, this American merchant fleet is imperatively required as an adjunct to our first line defensive forces—the navy.

(Page 374, Please)

Port of San Francisco

Recent Maintenance and Expansion

By P. W. Meherin

President,

Board of State Harbor Commissioners



Despite the general lag in business of the past five years, during which this port has suffered in direct proportion to the decline in commerce, our Harbor has nevertheless kept abreast of its needs in maintenance and improvements, while at the same time economy has been the rule. Therefore, when recovery in all lines is complete, our Port will be equipped to take full advantage of the influx of new business and the resumption of the old.

When the present Board of State Harbor Commissioners assumed office in January, 1931, it found a plant worth \$80,000,000, acquired during a period of some seventy-one years without the taxpayers of California being assessed a single cent either for acquisition or upkeep thereof. In every direction were evidences that these facilities had been capably managed by succeeding Harbor Boards, and in all modesty it may be stated that this splendid record

has been maintained during the past nearly four years.

Upkeep of any modern harbor is no small task, even without the addition of new facilities. Add to this the fact that revenues have fallen off heavily and it can readily be understood that the problem has been no light one. Fortunately, the present Board found at its disposal a highly trained and capable staff, headed by Mark H. Gates as Secretary and Frank G. White as Chief Engineer. These two fine officials, with their efficient subordinates, have been kept in direct control of this huge enterprise, to the eminent satisfaction of everyone concerned.

It has been the steady but conservative increase in facilities during the past few years that has made San Francisco Harbor more than ever pre-eminent among the other ports of the world in the handling of water-borne commerce. New piers and wharves, bulkhead structures, pre-

cooling facilities and the deepening of the channel through the San Francisco Bar—these are a few of the projects which have gone ahead quietly but steadily. Then there is the construction, jointly with the City, of the new Third Street Bridge, the bringing of a portion of the Embarcadero back to grade between Market and Harrison streets, and the breaking of the "bottleneck" which for many years impeded vehicular traffic at the Embarcadero and Clay street.

● Recent New Construction

The new construction of the past nearly four years will come pretty close to \$3,000,000 in cost, many of these projects being major ones. Payment for these improvements have been made from current income, supplemented by the proceeds of Harbor bonds which have been sold, always at a premium over face value, from time to time.

When the present Harbor Board



Center of San Francisco's Water Front and the Bay, with U.S. Fleet at anchor.

took office it was found that the State Pre-Cooling Terminal at China Basin, which was started by a previous administration, was incapable of handling all the calls being made upon it by California fruit and vegetable shippers. The terminal was enlarged once and several months ago the refrigeration space was increased another forty per cent, so that there are now available 670,000 cubic feet of refrigeration into which shippers may place their perishable products and from which these products are loaded on ships which dock alongside the terminal, for shipment to all parts of the world. Six major vessels can now dock at one time at the terminal and at Pier 46, which adjoins it and which has been made an integral part of the plant. These facilities should prove adequate for several years to come.

● Approaches

The Third Street bridge, carrying rail, street-car, automobile and pedestrian traffic, was built at a cost of \$650,000. It permitted the widening of the Channel at this point, with a direct beneficial result upon the operations of the banana terminal of the United Fruit Company, as well as upon other terminals situated shoreward from it.

Certain portions of the Embarcadero which lie within the original shoreline of San Francisco Bay, sink at the rate of about one-tenth of a foot a year, as does lower Market Street. Two or three years ago the Harbor Board carried through, at a cost of \$158,000, a project to raise back to grade the Embarcadero and the shoreward ends of Piers 14 to 24 inclusive.

Ever since the construction of the Embarcadero Subway, traffic had been congested at Clay Street and the Embarcadero, where the thoroughfare was only 25 feet wide. With the Harbor Board contributing \$200,000 and the City \$50,000, sufficient property was purchased to widen this point to 40 feet, with the possibility of doubling this new width when it becomes necessary.

The United States Government has recently completed the enormous task of deepening the San Francisco Bar so as to create an entrance channel 2,000 feet wide and 50 feet in depth below low water datum. This, the greatest entrance channel operation

in the United States, has already cost the Government some \$350,000 and has been actively under way for the past five years. It will solve a problem which long has been important to masters of ocean-going craft with deep draft.

● New Piers

A number of pier projects have recently been completed or are now under way. Only a few months ago the Harbor Board, at a cost of \$168,000, extended Wharf 92, on the south side of Islais Creek adjoining the State Grain Terminal, a distance of 890 feet. This is being used for the handling of California barley in bulk for shipment abroad and gives San Francisco the largest and most modern export barley terminal on the Pacific Coast as well as one of the finest in the world. New grain bins have been constructed at a cost of more than \$35,000 for the cleaning, grading and blending of barley.

Two new "finger" piers have been built at Wharf 47, adjoining Fishermen's Lagoon, one 650 feet and the other 295 feet in length, at a cost of about \$25,000. These piers were to give proper berthing space for the 150 or more boats of the sardine fishing fleet which, with its home port at San Pedro, spends seven months out of every year in San Francisco Harbor and operates off the Golden Gate.

Extension of Pier 42 a distance of 140 feet to a new length of 935 feet was begun last June for the use of the Dollar Steamship Company in berthing the larger vessels of its fleet. The low bid for the substructure was \$66,000, while the contract for the transit shed was let for \$14,000 more. In addition to this the Harbor Board is spending several thousands of dollars as its portion of the work. There is included in the project the construction of three cargo aprons and a new track for the Belt Line Railroad on the south side of the pier.

During August the Harbor Board awarded a contract for the erection of a two-story reinforced concrete bulkhead building between Piers 38 and 40 for the use of the McCormick Steamship Company. The total cost of the building will be close to \$100,000. Half of this cost is represented by the premium paid on \$500,000

worth of Harbor bonds which were sold to provide funds for this and certain other projects.

San Francisco's Harbor is not losing ground, despite the so-called depression. It has gained steadily in modern facilities throughout this trying period, and plant and equipment have been kept in excellent state of repair and efficiency. We can handle, with ease and dispatch, that great flow of commerce which we confidently expect will come to us in ever-increasing volume in the immediate future.

Book Review

FOG. By Alexander McAdie. Twenty-three pages of text, fifty-two plates and a frontispiece; 9 inches by 12 inches bound in blue cloth with gold stampings. Published by MacMillan Company, New York. Price \$2.50 net.

Pacific Coast readers will remember Alexander McAdie as a forecaster for the United States Weather Bureau at San Francisco where for eighteen years he engaged in extensive and intensive study of fog and cloud phenomena as demonstrated by nature in Central California. Many of the beautiful photographs of fog movements illustrating this book were taken in and around San Francisco.

The text explains modern scientific theory concerning atmosphere and its various forms of water vapor content. It directs attention to the possibility of dissipating fog on a large scale for greater safety in aerial and marine navigation. Professor McAdie has the rare gift of mental vision which sees abstract theories working out in concrete pictures, and the even rarer ability of describing these pictures in beautiful, simple English. He is now professor emeritus in meteorology at Harvard, having retired from the active professorship in 1932.

Every man who loves to watch the sea fog pouring over the California Coast Range, and who can see mysteries in the pulsing vapors of the Golden Gate, should buy this book and keep it on the table in the living room by the big window looking out to the west.

Seattle Achieving Her Destiny

By H. D. Fadden

When Capt. Vancouver, in 1792, sailed as discoverer up Puget Sound he was prompted by what he saw to record the following in the ship's log: "To describe the beauties of this region, will on some future occasion be a grateful task to the pen of a skillful panegyrist. The serenity of the climate, the innumerable pleasing landscapes, and the abundant fertility require only to be enriched by the industry of man to render it the most lovely country that can be imagined." (The captain had stopped in California on his way up the Coast.)

Fifty-eight years later, the first white settlers came. They located at a site now part of the city of Seattle, and named their settlement New York. The ignorant savages who inhabited the region facetiously renamed the place Al-Ki, meaning—bye and bye.

Then, some forty years later, Jim Hill, the "Empire Builder," predicted that in future years Seattle, as a seaport, would hold the same relative position on the Pacific Coast as New York does on the Atlantic.

Later still, in fact within the past year, an eminent engineer who was being interviewed by a representative of a national newspaper syndicate, said, "The time will come when the State of Washington, because of its water power, because of its materials, and because of other things that may be spoken of, will be one of the richest states in the Union, and nothing can stop it. That is based on common sense, and the comprehensive plus and minus, discussion of natural resources."

All these predictions—What have the years done to them—and what will they yet do?

The "industry of man" has come to the Northwest to fulfill Capt. Vancouver's prophecy. The climate and beauty of "the most lovely country that can be imagined" has always been here. The first settlers in their New York on Puget Sound have been, in one generation, followed by over 400,000 people. In 1841 New York on the Atlantic had no more. Al-Ki still retains its name, but is now part of a large and very progressive seaport. Since Jim Hill's day, east-

ern Washington has been changed from a desert to a garden. Where sage brush, and jack rabbits ran wild over a hundred hills, orchards now blossom and yield fruit, the volume and value of which rival the famed valleys of California. And production has hardly started. The \$60,000,000 Columbia River irrigation project, construction of which has just begun, will open up for settlement 1,200,000 more acres of rich land. This means more local consuming population, and greater commerce through the Port of Seattle. In Western Washington, vast areas that have already yielded fortunes in timber are being converted into dairy, poultry and fruit farms. These farm areas are relatively small, and the region is capable of supporting a dense population. In 1860, there were fifty-two factories in the whole State of Washington. Today, over 3660 manufacturing establishments, employing 115,000 men, turn out annually products valued at \$795,000,000.

Alaska, for which Seattle is the entrepot, has hardly scratched the



The harbor and city of Seattle looking across the famous Smith's Cove Terminal.

surface of its resources, yet it already contributes vast quantities of freight to swell the volume of Seattle's commerce. The backwoods town that inspired the prediction of Mr. Hill has become a major seaport of the nation. Where a few lines of lumber carriers plied in coastwise trade, now over eighty steamship lines operate to the principal ports of the world. And building up and sustaining this traffic is a rapidly developing territory, the possibilities of which no one can predict.

Mr. Hill could not have foreseen the changes that have come about in the development and administration of Seattle's harbor. With him, as with all railway executives of that time, monopoly of waterfrontage in the harbor was a railroad policy, and the location of a railway terminus at a seaport was usually made contingent on such control. In Seattle, this had virtually been accomplished. Of the 27 miles of waterfront surrounding Elliott Bay, all the best ocean terminal sites belonged to the railroads. There was not an inch of waterfrontage that did not belong either to railroad or private interests. During sixty years of this control, only about $1\frac{1}{2}$ miles of this frontage had been developed. The piers were small, inadequate, and obsolete, except for coastwise traffic. Including shed and open wharf, the total area of structure available for ocean shipping purposes amount-



Spokane Street terminal showing cold storage in background.

ed to 1,548,500 square feet. Today under the Port of Seattle, a municipal corporation, there are 7,152,938 square feet available, and of this amount the Port of Seattle owns 44.7 per cent, or 3,196,880 square feet.

Limitation by law on the total amount of its bonded indebtedness combined with the prohibitive prices placed on waterfrontage, forced the port's policy of extensive development of a few sites. Instead of the conventional piers, familiar to all harbors, the Port's terminals are developed with many shipping service facilities. Warehouses, cold storage plants, grain elevators, ice plant, oil storage, and other facilities are adjacent to piers and transit sheds, and provide revenues over and above that obtained from the movement of cargo across the wharf. In these services is found the answer to sustained revenues of the port during the

past four years of depression.

The appraised value of the Port of Seattle properties is \$15,000,000. The outstanding bonds are slightly over \$7,000,000. Interest payments on outstanding bonds are approximately \$1,000.00 per day. Business expense, which includes every expense, except bond interest and bond redemption, for the first six months of 1934 was \$312,891.98, and revenue earnings were \$408,402.91.

Despite the longshoremen's strike, which tied up shipping from May 11 to August 9, 1934, the total expense, including bond interest, bond redemption, operation, maintenance, etc. from January 1st, 1934, to June 30, 1934, was 13.5 per cent less than for the similar period in 1933, and the revenues were one per cent greater. The Port has never levied its full legal tax, and in recent years has reduced the levy until only $\frac{1}{2}$ mill is now required. This means that the taxpayer is obliged to pay out of every \$100 of taxes levied against him, less than five cents towards the support of the municipal terminals.



The Northwest has abundant waterpower for creating electric energy. Seattle is one of the best lighted cities in the nation.

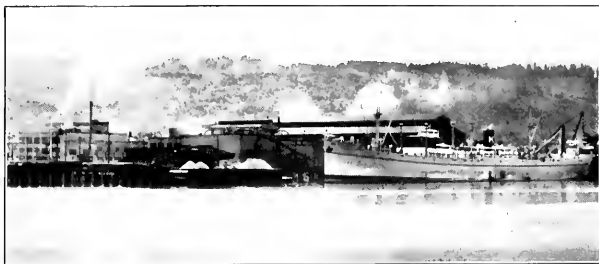
Trade Literature

Westinghouse Elects Three Vice-Presidents. Following a recent meeting of the Board of Directors of the Westinghouse Electric & Manufacturing Company, President F. A. Merrick announced the election of three vice-presidents, Roscoe Seybold, formerly comptroller; William G. Marshall, formerly assistant to vice-president; and Ralph Kelly, formerly director of budgets. They will make their headquarters in East Pittsburgh.

Oregon's Premier Port

Portland, the most important fresh water harbor on the Pacific Coast and a major world port, traces its initial port activities back to the first half of the last century, and has since then played an increasingly important role in the development of the maritime commerce of the Pacific Northwest.

During 1932 and 1933 there was a substantial decline in shipping through Portland, which along with other ports suffered from the world wide stagnation of trade. However, with the advent of 1934 port tonnage began to show a substantial improvement over the two previous years, but this welcomed revival in shipping during the first quarter of 1934 was short lived, thanks to the suspension of waterborne commerce on May 9th, when the Longshoremen's Strike was called. For nearly three months shipping in Portland was almost totally paralyzed and losses suffered by steamship operators, terminals, shippers, and other interested parties, to say nothing of the strikers themselves, reached staggering totals. In June the total export was only 187 tons to Alaska, and imports 44,000 tons, all of which was oil and gasoline. However, with the resumption of waterfront activities pending the decision of the President's Board of Arbitration, the maritime commerce of the port has expanded in an encouraging volume, and in August the exports reached 269,158 tons for the month, the highest since the pre-slump days. Imports for the same month were 295,-



The Portland Vegetable Oil Mills and plant of Durkee's Famous Foods, Inc.

599 tons. For the nine month period, notwithstanding the strike, 1934 shows a total waterborne trade of 3,008,502 tons, a gain of 44,187 tons over the first nine months of 1933.

During the year the outstanding new construction along the waterfront was that of the General Grocery Company's \$300,000.00 plant on the east side of the river, south of the Burnside Bridge. The site occupies some 65,000 square feet with a 235 ft. river frontage, and has a combined floor space in its three stories of 135,000 square feet. On the ground floor is located the main warehouse, the second floor houses the offices, and a portion is used for packing purposes, while the entire third story is devoted to the manufacture of coffee, extracts, spices, etc. The first vessel to berth at the General Grocery Company's dock was the Hubert Schafer of the Schafer Bros. Steamship Lines, whose carriers make regular calls at the Gen-

eral Grocery Company's berth.

The Santa Cruz Portland Cement Co. has completed construction of its dock and bulk handling plant on the East Side of the river, at the foot of Albina Avenue and Lewis Street. The dock is 400 feet long and the bulk handling plant consists of 12 outside silos and five inside, having a capacity of 75,000 barrels. The sacking out equipment has a capacity of 400 barrels per hour, while 1000 barrels of bulk cement per hour may be loaded into cars or barges. Serving the plant are track accommodations for 16 cars. Bulk cement for the plant will be transported from the south by the company's new vessel, the Santacruzement, a specially constructed vessel 417 feet in length and having a capacity of 8500 tons. This steamer was expected to have made its first call at Portland towards the latter part of October.

The General Construction Co. and J. F. Shea recently completed a sand and gravel plant on the East side just north of the Pacific Coast Elevator dock, at a cost of \$10,000.00, in connection with their contracts at the Bonneville Dam. The plant has a capacity of 250 cubic yards per hour, or sixty carloads per day.

It is sincerely hoped that plans launched by the Administration to adjust labor disputes will preclude the possibility of further strikes during the remainder of 1934, and that 1935 may see the maritime commerce of Portland return to something near a normal level and in keeping with its great tributary area and unsurpassed shipping facilities.



Dock and bulk cement handling plant of the Santa Cruz Portland Cement Company at Portland.

Latest American Intercoastal Cargo Liner

*Fine Cargo and Passenger Steamer
Added to Luckenbach Fleet*



Lewis Luckenbach

The S.S. William Luckenbach, latest addition to the Luckenbach Line of freight and passenger steamers, will soon return to San Francisco on the completion of her maiden voyage to East Coast ports.

Purchased a year ago from the Navy Department, she underwent a complete rebuilding on the Pacific Coast during the first eight months of 1934, leaving the shipyard a typical Luckenbach carrier in appearance and equipment.

After successful completion of trials and loading at Puget Sound ports, she sailed from Seattle about the middle of September and completed the first leg of her voyage at an average speed of 13.8 knots.

A ship of 471.7 feet registered length, 59.2 feet beam and 6939 gross tons, she will carry 10,500 dead-weight tons and her six cargo holds contain 528,000 cubic feet of space, bale measurement.

As customary with Luckenbach,

ships she carries a maximum of cargo handling gear, having been completely re-rigged; her six hatches now being served by twenty new steam driven winches enabling her to work ten gangs.

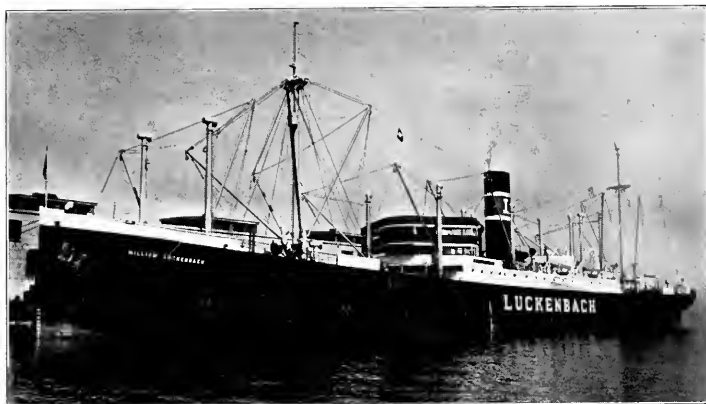
In order to provide ample power to maintain the fast schedule under which Luckenbach operates, her donkey boiler was removed and two new boilers installed, giving her a total of five large Scotch marine boilers. At the same time the vessel was equipped to burn oil fuel and storage capacity of 13,043 barrels provided.

Her machinery was completely reconditioned, including main engine which is one of the largest triples now in operation and which has a high pressure cylinder of 32½-inch diameter, a stroke of 55-1/8 inches and operates under 220 pounds working steam pressure with a moderate degree of superheat.

Her electrical installation is com-

pletely new, from the 75-kilowatt geared turbine generator to the last outlet. Wiring is carried through pipe conduit, thoroughly grounded and special fixtures were manufactured for the passenger accommodations to obtain pleasing lighting effects and appearance.

Accommodation is provided for sixteen passengers in eight rooms each fitted with two beds, running water, electric fan and unusually large closet and drawer space. All are outside rooms and open into a spacious corridor which leads to lounge, saloon and the main stairway at the head of which is the smoking room and bar. This room is particularly attractive in appearance and location, opening out on a wide bridge deck partly covered in and of such ample proportions as to permit all kinds of outdoor games without interference with the com-



S.S. William Luckenbach has a hull 471.7 feet long with 59.2 beam. She registers 6939 gross tons, and will carry 10,500 dead weight tons. She has eight bed rooms for 16 passengers, with ample public room and deck promenade space.

fort of passengers less actively inclined. Radio broadcast reception is provided for entertainment, news and dancing, on all frequencies, with phonograph attachments for use as desired.

Needless to say, galley and service arrangements are new and entirely complete. The passenger arrangements of this vessel are a radical departure from any previous design for a freight ship and set a new standard of transportation by combining almost all the advantages of the passenger liner, including complete segregation from the crew, with those of the freighter and providing in addition, deck and public room space out of all previous proportion in either class of ship. These features are considered by Luckenbach to be of greatest importance to the traveler on a tropical voyage of this duration.

A number of innovations are to be found on this ship, principally in the extensive use of arc welding during the alterations. Deck fittings, cargo gear, bulkheads, foundations, and other details are of welded construction and design. Winches are mounted on rubber in conjunction with foundations of entirely new type, greatly reducing noise and vibration.

Rebuilding was effected by Todd Dry Docks, Inc., at Seattle under the supervision of the United States Local Inspectors and Lloyd's Register of Shipping, in which the vessel holds the highest class.

Trade Note

Short Wave Radio Installations. A contract for the installation of short wave radio telegraph equipment on thirteen ships of the Standard Fruit and Steamship Company has been received by the Radiomarine Corporation of America, it was announced recently by Charles J. Pannill, executive vice-president of this RCA marine subsidiary.

The new equipment will supplement the regular, intermediate frequency equipment of the vessels and provide direct and constant communication between the ships and their home-office ports, even over distances of several thousand miles. The many commercial advantages of this accessibility are obvious.



For a ship carrying only 16 passengers, S.S. William Luckenbach has very spacious and comfortable accommodations. At top is shown one of the staterooms. In the center is the dining room. At bottom a corner of the comfortable lounge.

Why An American Merchant Marine

(Continued from Page 366)

We pay foreign shipowners at present serving our trades, an annual tribute of 600 millions in freight and passenger revenues. If this is at least partly reserved to our own ships it will spell greater prosperity to our people.

● Seagoing Passengers

In the six-year period of 1923-1928, there were 5,315,562 passengers inward and 4,289,440 passengers outward, to and from American ports. By far the greater amount of these were Americans. An average of 500,000 American tourists go abroad each year. They spend close to 900 million dollars annually.

Foreigners travel almost exclusively on their own flag ships. The Japanese practically enforce this. British officials must, wherever possible, travel on British ships. Italians are very subtly, but nevertheless very effectively, forced to travel on Italian ships. Conversely, Americans, both private citizens and officials, so far travel very extensively on foreign ships. Both prohibition and lack of sufficient and suitable ships have been the cause. We need more passenger liners. Whether we need super-liners of the types of the Normandie of the French Line, or the Queen Mary of the Cunard-White Star Line is a very moot point. But the fact is that no country on the globe other than America can furnish a living to the super-liners of Great Britain, France, Italy and Germany. If this is so, why should not we have the necessary ships to cater to our own people? These super-liners have a three-fold purpose: They are a source of much favorable advertisement; they draw the well-to-do Americans and American tourists to the country of their flag; in case of war they are invaluable as auxiliary navy cruisers, or to the army as mighty armed transports. Hence they are built almost exclusively with national funds, or with long term, low interest government loans, and receive very substantial subsidies based upon their expected useful career, for say, twenty years.

● Is World Overtonnaged?

Much has been said about our

shipbuilding and the overtonnaged markets of the world. English owners particularly have accused America of building new ships. What are the facts?

The present world tonnage suitable for ocean carriage of cargo and passengers is divided as follows:

| Country | Gross tons | % |
|---------------------|------------|--------|
| Great Britain | 11,255,936 | 36.72 |
| United States | 5,421,168 | 17.69 |
| Germany | 2,215,195 | 7.23 |
| Japan | 2,093,573 | 6.83 |
| France | 1,850,332 | 6.04 |
| Italy | 1,712,065 | 5.59 |
| Holland | 1,550,947 | 5.06 |
| Norway | 1,005,286 | 3.28 |
| Others | 3,548,513 | 11.56 |
| Total | 30,653,015 | 100.00 |

In this table are included American coastwise, intercoastal and presently operated war-built freighters and combination ships. Many of these need soon to be replaced with modern tonnage.

In the period covered by 1922-1932, six of the leading maritime countries built 2100 ships with a total of 14 million gross tons.

During this period Great Britain built 1400 ships of 8,500,000 gross tons, while United States built 100 ships of 850,000 gross tons. Just a case of 14 to 1 in the number of ships, and 10 to 1 in the number of gross tons.

But that was up to 1932. Surely we have done better than that since then! Let us see. As of the quarter ending September 30, 1934, Lloyd's list shows:

| | Gross tons |
|--|---------------------|
| Total | 296 ships 1,311,387 |
| Divided as follows: | |
| Great Britain, Ireland and Dominions 135 " | 608,420 |
| Japan | 42 " 149,750 |
| France | 10 " 120,868 |
| Germany | 33 " 120,816 |
| Denmark | 15 " 74,938 |
| Holland | 17 " 70,735 |
| Sweden | 14 " 64,565 |
| Italy | 4 " 37,970 |
| United States | 9 " 22,225 |

In this case England is still outbuilding us—15 to 1 in ships and 27 to 1 in tonnage.

We are not objecting to England building ships. We recognize her right to and need for a merchant marine. England has a two-fold right to a merchant marine second to none. Her navy and her safety demand a strong commercial fleet in times of stress. She is the leading commercial nation on the globe. Hence, no one in his right mind denies her the right to as large a fleet as she may need. On the other hand, England, Japan, nor any other nation has any god-given right to act as the wagoner of the world. America has declared her policy. She must have a suitable and adequate merchant marine to carry at least 51 per cent of her commerce in times of peace, and in times of war, whether she is a belligerent or a neutral.

● Indirect Services

Foreign ships in the indirect trade, and direct trades for that matter, purchase only the very minimum of supplies in this country. They very naturally pick these up at ports where the price is the lowest.

That this indirect trade is large in volume is made apparent by these figures for 1928. Nearly one-half of 2,972 foreign ships of 15,476,071 gross tons sailing out of American ports operate in indirect trades.

Total British ships—1,451 of 7,923,505 tons, of which 710 ships of 3,797,642 tons are in indirect trade.

Total Norwegian ships—405 of 1,453,052 tons, of which 362 of 1,320,167 tons are in indirect trade.

These ships do not hire American crews. They do not effect repairs, drydock or surveys here. They purchase a minimum of supplies. They do not take out insurance here. They render services which we should render at least partly ourselves.

● British Subsidies

Great Britain built up her essential services by mail contracts, admiralty and service subsidies, construction and operating capital loans, favored national tariffs, shipping combines, by permitting deferred rebates, and by special treaties. From 1840 to 1900, mail contracts and subsidies of all kinds were paid in the amount of \$283,906,000.00, or \$4,731,000.00 per year. From 1900 to 1931, with the exception of years 1916 to 1918, for which figures are not available, the payments totaled \$90,192,700.00, or about \$3,110,093.10

per year. The Peninsular & Orient Steamship Company has received a subsidy, or mail contract since 1837. It is now receiving \$1,484,000.00 per year. The trans-Atlantic contract had its inception in 1840 with the Cunard Line. From 1840 to 1867 the payments rose from £60,000 to £173,340 per year. For the period 1928 to 1932 it was £200,000. When the express liners Lusitania and Mauretania were built the British government made the Cunard Line a 20-year loan of £2,600,000 at 2½ per cent. In addition, they were paid a mail contract of \$330,900.00 per year for 100 tons mail space, with \$6.39 per 40 cubic feet if mail was in excess of 100 tons. The admiralty paid \$730,000.00 per year as a naval reserve bounty. Economic conditions stopped work on the famous 534, now Queen Mary. The British government came to the rescue. They advanced nine million pounds, nearly 44 million dollars, based on debenture stock maturing in 1975. This fund is divided as follows: three million pounds to complete S.S. Queen Mary, five million pounds to build a sister ship, and one and one-half million pounds for operating capital. An amalgamation of the 94-year independently-operated Cunard Line and the 63-year-old White Star Line was insisted upon. That is England's answer to Germany, France, Italy and in some measure to America. Trans-Pacific bounties were first arranged in 1889, when the Canadian Pacific ocean services received \$292,000.00, plus an admiralty subsidy of \$35,600.00. This service now receives \$500,000.00 per year, and undoubtedly also the \$35,600.00 naval reserve bounty. To secure an adequate service to Canada and afford mail service to Oriental possessions via all British territories, the Canadian Pacific built ships and received \$500,000.00 from Canada and \$250,000.00 from Great Britain per year, plus the usual \$5.00 per gross ton naval reserve bounty.

The depression, economic conditions, market changes, tariff manipulations, hand to mouth buying, and cargo and regular liner competition have placed the British tramp ship in a difficult position. Two million pounds have been assigned to subsidize the British tramp.

Says Sir Walter Runciman: "The

aim is to ensure that the subsidy is effectively directed to securing the greater employment of British tramp shipping at the expense of foreign subsidized shipping."

There is nothing vague about that. There seldom, if ever, is anything vague about the British. They know what they want and set about getting it. The British tramp owners are suggesting 10/- per gross ton subsidy for ships active in trade, and 5/- for laid up ships. Owners of cargo liners in regular trades will undoubtedly present a subsidy program in the near future.

The government has further proposed a scrap and build program. This is meeting opposition.

The Trade Facilities Act of both Great Britain and Northern Ireland, created to provide employment, have guaranteed construction loans to the huge sum of about 200 million dollars. The Australian government has chipped in an additional 2.1 million pounds. These subsidies and loan funds have accomplished more than one purpose. A modern fleet assures supremacy at sea. Skilled labor and essential shipyards have been kept at top efficiency. Great Britain is prepared for any eventuality, rush of business or catastrophe.

The British have not hesitated to use tariff preferentials, orders in council, deferred rebates, contracts, subsidies, insurance rates and every other known method to stifle competition. At present there exists a great propaganda among British Empire merchants, shippers, producers, manufacturers to "Buy, Ship, Insure Empire." There is no doubt about its effectiveness.

British owners object to our coastwise laws and point out that their coastwise trade is open to anyone. Is it? The British carry 99.1 per cent of their own coastwise business. Says Sir Walter Runciman: "If we find that there is an invasion of foreign ships into our coastwise trade and if they are running in competition with our coasting people, because they ignore our merchant shipping acts and will have nothing to do with the condition of the National Maritime Board, then we may have to take action."

In the inter-Empire trade, also supposed to be open to foreign ship-

ping, the British carry 92 per cent of the commerce. Preferred nation agreements and preferential tariffs are effective.

Between Great Britain and foreign ports British ships carry more than two-thirds of the trade. In the purely indirect trade, between foreign countries not under the British Union Jack, British ships carry between one-third and one-half. Mulhall's statistical dictionary showed at one time that it amounted to 56 per cent.

Other nations have taken full cognizance of the effectiveness of England's unswerving policy of the past 100 years.

● German Subsidies

Said Bismarck: "The merchant marine service is the handmaid of all other industries, of agriculture, manufacture and commerce. . . . On the day when the freight trade is given over to foreigners a mortal blow will be struck at all industries of the country."

In 1885 Germany wanted a line to Africa and the Orient. The North German Lloyd received a 15-year mail subvention in the amount of \$1,047,200.00 per year. In 1898 this was renewed and increased to \$1,330,420.00 annually. In all, during the thirty years prior to the war, total mail subventions amounted to 50 million dollars. But undoubtedly of greater worth to German shipping was the strenuous government-fostered export program with its preferential rail and water rate on through bills of lading when goods were shipped on German vessels. This was a powerful stimulus both to German trade and to shipping.

The tremendous German and Russian emigration created the big fast German trans-Atlantic super-liners, which for ten years held supremacy on the Atlantic Ocean.

At the beginning of the Great War Germany had five million gross tons of ocean shipping. The war cost her the ships, her markets and the right to use the preferential export rail rates. She was faced with a reconstruction program. On account of the exchange question it is difficult to determine values. In 1921 German shipowners petitioned the government for 37 billions of marks with which to replace the lost tonnage. Various appropriations were made. Eventually 30 billion marks were

placed at the shipowners' disposal, with the provisos that 90 per cent of the tonnage be built in Germany, and that a ten-year program provide 2.5 million deadweight tons. Within two years over one million deadweight tons was launched and in service. In 1925 another 50 million marks were appropriated for shipbuilding purposes.

In 1926 three million marks (\$710,000.00) per year for six years were provided. During the period of 1925-1929, Hansa Line, North German Lloyd, and Hamburg-America Line floated, by sale of stocks and bonds, a total of \$31,500,000.00 in the United States.

Now Germany has about $2\frac{1}{4}$ million gross tons of ocean shipping in modern and economic tonnage suitable to meet any competition.

When the government advanced these funds, and as the cartel system was in full swing, mergers were insisted upon. These have now been found unwieldy, as responsibility could not be placed upon or traced to any one man. Mergers of world-wide services are now being unscrambled, and lines serving particular trade regions are being amalgamated under one responsible head.

● French Subsidies

French merchant marine operations have had more extensive, as well as longer and more continuous government aid than any other merchant marine. French contract line services began to receive national aid in 1851. Up to and inclusive of 1932 these regular-route liner services have received a total national aid of 320.2 million dollars. This is not francs. It is dollars. Shipbuilding bounties were inaugurated in 1881. Up to 1920 this had amounted to 46.9 millions. Navigation bounties for ships other than those operated in regular line services were adopted in 1881. Up to 1930 this had amounted to 108.4 million dollars. So there we have a known outright subsidy outlay of the French government of 475.5 million dollars. To take the place of shipbuilding bounties, long term, low interest, construction and operation loans have been made available. The French government assumes part of the interest charges. A special Legion of Honor decoration is awarded for unusual perform-

ance in fostering French shipping. The "tarif de combat," and other restrictions, are used to advance French marine policies. On July 3, 1934 the French adopted a new general subsidy plan. This is in addition to the regular essential liner subsidies and shipbuilding bounties, loan and interest and insurance arrangements to cover an emergency period of two years with a prospective additional two years. This general subsidy is not to exceed 140 million francs (\$5,488,000.00) per year. It is particularly designed to employ laid up tonnage.

● Italian Subsidies

Italy in the years covered by 1886-1914 paid out a subsidy totaling \$90,677,960.00, or an average of \$3,126,826.00 per year. Under the 1926 law total subsidies between 1926 and 1947 were calculated to be \$236,659,230.00, or an average of \$11,333,000.00 per year. In 1927 shipping loans, guaranteed by government subsidy payments, of 20 million dollars were made in London and New York. Special facilities for loans to shipping have been arranged by the Italian government. The government contributes 2½ per cent of interest charges on loans made on ships built in Italy and 1 per cent on Italian flag ships built elsewhere. The fact that all materials are purchased from foreign countries has created the need for a subsidy for hull, engines, boilers, repairs, equipment and material, to ensure the work being performed in Italy. Service subsidy provides that agents in foreign countries are to be Italians. In 1922 there were 162 ships of 390,901 gross tons in essential services which covered 4,398,638 miles and received lire 317,267,397.00, or \$17,928,427.71, in subsidy. In 1933 the picture was: 224 ships of 774,915 gross tons which covered 7,142,140 miles and received lire 263,190,000.00, or \$13,843,794.00, in subsidy.

● Japanese Subsidies

Japan in 1896 inaugurated special service subsidies. To encourage building of ships for the European service the Japanese government paid on a 5000 tons gross steamer \$50,000.00 on the hull and \$25,000.00 toward the cost of the engines, and guaranteed a 15-year subsidy of \$24,000.00 per round trip. For the four years 1896-1899 inclusive, the

government paid a total of \$6,540,451.00 in subsidies. Between the years 1914 and 1930 mail contracts and subsidies paid Japanese owners amounted to \$43,463,200.00. Between 1897 and 1918 shipbuilding bounties amounted to \$11,283,283.00. There were no further shipbuilding bounties until 1932, when yen 11 millions were appropriated, as a result of which there are forty fast modern Japanese motorships now trading in the trans-Pacific trade. I pointed out in my former articles "Whither Bound (October)" and "Foreign Competitive Practices" (November) that the Japanese were formulating a new shipbuilding bounty plan. It has come. It provides a 5-year program, 500,000 tons of old tonnage to be scrapped. This program, to include both freight and passenger ships, stresses fast passenger ships for San Francisco and Europe, both of which lines are well served now. The program is based on yen 4,800,000.00 to be spent annually. Total grant yen 24,000,000.00; more than double that of the 3-year 1932-34 program.

Much controversy is encountered due to cutting the bounty per gross tons from yen 54.00 to maximum yen 48.00. Owners claim construction costs have gone up from about yen 250.00 to yen 400.00 per ton. The total subsidies paid in 1933 were yen 12,339,000.00, or \$6,169,500.00. You may object to the full par of exchange. The fact is that price levels in Japan have actually gone down 2 per cent, instead of up 40 per cent or more, as one would assume from exchange quotations. Besides shipbuilding bounties the Japanese government also pays a bounty to steel mills. The government further assumes from 1½ to 2 per cent of interest on loans made to Japanese owners. There is also an emigration bounty for ships in South American emigrant trade.

In enlarging the 1934 trans-Pacific subsidies the reason given was the loss made by the N.Y.K. in that run. I only hope that American owners might make the kind of losses indicated in the following: The N. Y.K. as of March 31, 1934, show that after they deduct 5,300,000 yen for the reserve fund they had a net profit of 1,156,000 yen.

The balance brought forward was

2,437,000 yen, making a total of 3,593,000 yen. After deducting for legal reserve 60,000 yen, for directors and auditors' fees 40,000 yen, and for dividends at 3 per cent 964,000 yen, they had a balance to bring forward of 2,530,000 yen. But here is the significant part of the way the Japanese are able to make a profit due to low costs, shipbuilding bounties, subsidies, remission of interest costs, cheap labor and supplies: "Due to its financial strength the N.Y.K. was able to pay off half its debt in amount of 60 million yen and convert the other half to a lower (4½ per cent) interest."

I have shown the major merchant marine countries with huge subsidies of some kind. Space does not permit going into detail, but a number of other maritime nations have service subsidies or shipbuilding bounties or other facilities, such as financing, tariff restrictions, cabotage and special treaties.

● Conclusions

Why should America have an adequate merchant marine?

We originate more foreign commerce than any other nation, except the British Empire.

Our citizens travel in foreign countries much more extensively than any other nationals.

Our navy requires an adequate number of supply ships with a wide radius of action.

An adequate merchant marine protects and serves to develop our foreign commerce.

An adequate merchant marine adds 40 per cent to our naval forces.

An adequate merchant marine provides trained American officers and men when they are needed.

A continuous building program assures adequate skilled shipyard labor when it is most needed for naval purposes.

Without an adequate merchant marine the American merchant, farmer, manufacturer and traveling public, as well as our mails will be left in foreign hands.

To build American ships for private operation requires American capital. To secure capital, steamship companies must have private stockholders. In times of peace, stockholders, no matter how small or how big, want interest on the capital invested.

● National Aid Needed

The national aid needed to attract the American investor to the American merchant marine involves:

(1) Cost of ships for any specific trade and of any particular type to be no greater to the American owner than ships of the same type built in foreign shipyards cost a foreign owner in the same trade. This involves a direct ship building bounty, or that capital subsidy be assigned to shipbuilders to permit them to quote prices equal to any other foreign shipbuilder. Free ships (i.e., ships built in foreign yards and imported free) would accomplish the same thing. This would, however, defeat in part our purpose of building up American prosperity.

(2) A sufficient mail contract, or any other form of national aid, to equalize any handicap faced in any particular essential trade by reason of our higher cost of operation.

(3) Our laws concerning ship repairs should be repealed, or allowance made accordingly.

(4) If and when it is needed, recognition to be made of costs of entering or penetrating new trade routes, or further develop present regional routes.

(5) Government operation of transports, and lines in direct competition with private owners, should be abolished.

(6) Ships built to serve the navy during time of stress should, as in Great Britain, be recompensed for extra costs by being placed in the naval reserve and paid a reasonable annual sum based upon value as naval auxiliaries.

(7) Congress has enacted a naval reserve policy. This should be made effective by the necessary appropriations. A program of as nearly as possible 100 per cent American crews for naval reserve ships should be promoted by this means.

(8) Certain sections of the Seaman's Act, found by experience to be impractical and harmful, should be revised and amended in the interests of seamen, owners and the public at large.

(9) Shipping laws, many positively archaic, should be completely re-codified in conformity with recommendations already made by government bureaus, shipowners' and shipbuilders' associations and others.

(10) A market should be provided for ships of superior type, not yet out moded, and with years of useful life, but which in certain routes must be replaced to meet competitive features, or to further develop that particular trade. The government should appraise these ships, stipulate a price which should go directly to partly pay for the new ships and upon delivery of these the government should take over the ships being replaced and assign or re-sell to operators in other trades where these ships would improve service. This would stimulate new building and employ large numbers of men in our shipyards and all over the country.

(11) Consideration of preferential treatment to American ships in direct trade, by enforcing statutes under section 28 of 1920 Act in the use of American railroads, to foster our foreign commerce, should be further developed.

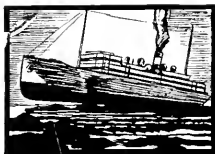
(12) Powers conferred upon the Shipping Board Bureau by the acts of 1916 and 1920 should be freely used to curb discriminatory competition and rate practices of foreign lines, usually in indirect trade; and to stamp out conditions inimical to the American merchant marine. This can be done by further control and use of established conferences.

(13) An early consideration and decision should be made as to the advisability of amending existing laws to again permit lines in regular trades to pay deferred rebates to contracting shippers, this to be open and alike to all. This would largely eliminate secret or special contracts to large shippers, and secret rebates, as well as control inadvisable rate cutting competition.

(14) Further Shipping Board Bureau action, wherever and whenever needed, to permit American owners participation on an equal basis in foreign conferences, particularly so our direct inbound trades must be made available.

(15) A national plan should be devised to foster American shipping by persuading the American government, government officials, American exporters and importers, and the great American public to ship and travel by American vessels.

(Page 386A, Please)



Marine Insurance

Safety in

The Design of Small Tankers

By Martin G. Kindlund, *Naval Architect*

The naval architect has to consider various features of design in connection with each of several operating conditions in order to provide for safety against fire and explosion, including the following:

General arrangement.

Construction.

Cargo pumps, piping and discharge hose.

Venting of cargo tanks.

Ventilation of other compartments.

Fire protection, including both fire prevention and fire extinguishing.

Propelling and auxiliary machinery.

In the majority of cases, the problems connected with the loading and discharging of cargo appear to be of paramount importance. Of these two operations that of loading presents the greater hazard. All experienced operators recognize the potential danger attendant upon discharging gasoline vapor from the tanks, and they take extreme precautions to lessen this danger. It can never be entirely eliminated. There is always the possibility of a spark coming in contact with an explosive mixture of gasoline vapor and air, or of a flammable but non-explosive vapor being set on fire by an open flame. An explosion is usually disastrous and may cause an equally disastrous fire. It is to the prevention of such occurrences that the attention of the designer should be chiefly directed.

● Cargo Tank Venting and Protection

Cargo tanks should be closed at all times, except in an emergency or

when the tanks are gas-free; the free entrance of air and the escape of gas should be prevented; means should be provided for carrying out all operations without the necessity, either real or apparent, of opening the hatches and ullage holes; such means should be dependable under all circumstances. All the problems involved have not as yet been satisfactorily solved, but those of us who are interested in the subject are confident of ultimate success.

Air is permitted to enter each tank through a flame screen and so-called

vacuum valve. Air and gasoline vapor are permitted to escape from each tank through a relief valve and a flame screen. Both valves are usually contained in the same body. They are of such design and made of such materials that failure to function is practically impossible. The pressures required to open the valves vary from a few ounces to several pounds per square inch, depending upon the grade of cargo carried. Sometimes the valves are made adjustable and it is then possible to vary the opening pressures to suit

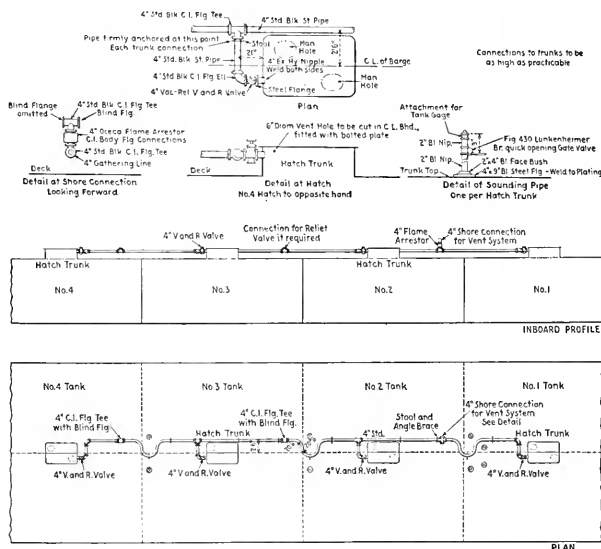


Fig. 1. Deck vapor piping on Oil Transfer Corporation barges.

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conditions. The flame screens are usually double, each being made of 40 by 40 Monel wire cloth of ample net area, suitably supported by a grid and protected by a substantial guard. It is a requirement that the valves and the flame screens must be easily and quickly removable for inspection and cleaning, and that the valves require no adjustment when being replaced. Valves that do not meet the most exacting requirements for dependability are worthless.

When loading or discharging gasoline cargoes, the tanks should be gaged without lifting the ullage plates or removing the sounding plugs, whichever means is provided. Gages of various kinds have been tried, but so far as the writer knows, a really satisfactory gaging device for marine service has not yet been developed. This is a requirement that must be met in order to secure maximum protection, and it is only a question of time before one will be perfected. The usual method is to place a gage board in the upper part of the tank with two sight glasses fitted in the hatch cover over the board, one to admit light and the other to look through. The sight glasses are equipped with wipers on the under side; they should also be fitted with covers for protection and made removable to guard against breakage when steaming tanks, although special glass may overcome the latter objection. This arrangement has been fairly satisfactory, but there is room for much improvement in order to secure accuracy and reliability.

A float-type gaging device has been proposed for use in topping-off. It has a range of 15 to 18 inches and appears to be quite practicable as

well as accurate. Gages that indicate the approximate level of the cargo at any stage of loading are also feasible. Since tanks carrying gasoline are ordinarily loaded full, and the topping-off stage is the one that must be watched most carefully, a combination of these two gages is all that is required 90 per cent of the time. When other than Class-A petroleum products are being carried, tanks may be gaged in the usual way through the ullage plates. It is desirable to fit a small trunk at the center of each tank, unless the hatch trunk is located there, for the purpose of attaching the gages at a point where the results will be accurate regardless of trim and list.

In order to provide for a possible overflow while loading, if it is considered that the vapor relief valve described above is not adequate to meet the maximum loading rate, a separate relief valve is fitted on the hatch trunk having a weighted cover to lift at a higher pressure than the regular valve. This emergency relief valve may never be called upon to operate, but it should be maintained in operative condition at all times. A spill is a very rare occurrence and it is considered to be almost a capital offense on the part of the officer in charge of loading.

● Deck Vapor Systems

Some of the oil transportation companies have installed what is known as a deck vapor system on their vessels. In this system the gasoline vapor escaping from the tanks while loading is collected and led into a header, from which the vapor may be carried to a point well above the deck before being discharged, or it may be carried ashore through one or more lines of hose. In at least one

instance in the New York District, at the terminal and loading station of the Shell Eastern Petroleum Products, Inc., at Sewaren, N. J., a shore line has been installed for the disposal and recovery of gasoline vapor. There is a 6-inch pipe line on the dock with five 4-inch branches on both sides for convenient attachment of hose from the barge. The line is extended inshore through about 700 feet of 6-inch pipe to a point remote from the plant buildings and there carried to a height of fifty feet before ending in a flame arrestor and cowl. The release of vapor at this point is considered to be absolutely safe as it will be thoroughly dissipated before reaching the ground. Provisions for the recovery of the vapor are to be made at some future time.

Fig. 1 shows a deck vapor system as installed on barges of the Oil Transfer Corporation. In this case each pair of tanks is fitted with a 4 inch bronze, weight-loaded, vacuum and relief valve, the relief outlet being connected to a 4-inch deck line, while the vacuum valve is arranged to supply air direct from the atmosphere. A flame screen is fitted over the air inlet.

The valves are attached directly to the hatch trunks. They not only furnish pressure relief but act as check valves to prevent vapor from backing into the tanks, and to prevent the possible mixing of cargoes.

Port and starboard hose connections are provided at a convenient point in the deck line for carrying the vapor ashore. A four-inch flame arrestor is also fitted at the discharge in order to protect the tanks and piping when the vapor is released on deck. Additional connec-

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tions are provided in the deck header for multiple shore hose lines, or for carrying the exhaust to a point above the deck where it can be more thoroughly diluted with air before leaving the barge. In this case a flame arrester would be fitted at or near the outlet.

The particulars of the valves used in this installation are as follows:

Nominal size of valve4 in.
Diameter of flanged connections
.....4 in.

Relief valve:

Diameter of seat3.69 in.
Net area through seat.....9.2 sq. in.
Opening pressure 7.0 ozs. per sq.
in.

Vacuum valve:

Diameter of seat2.69 in.
Net area seat5.2 sq. in.
Net area flame screen6.5 sq. in.
Net area guard6.8 sq. in.
Net area deflector8.5 sq. in.
Opening pressure
.....1.1 lbs. per sq. in.

During the pumping test at the yard of the Federal Shipbuilding and Dry Dock Company on July 2, 1934, the following observations and readings were taken:

(1) With Hatches Tightly Closed. Water was pumped into all the cargo tanks and the pressure valves were found to function perfectly.

Water was pumped out of the tanks, using both cargo pumps on each pair of tanks. All the air entering the tanks passed through one

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vacuum valve. The valves were found to function perfectly, being held off their seats steadily at a height of about 3/8-inch, which is 75 per cent of their maximum lift. The results were as follows:

Rate of discharge at 1250 engine revolutions per minute — 1656 gallons per minute or 221 cubic feet per minute.

Area of air passage between valve and seat—3.16 square inches.

Maximum velocity of air through valve—168 feet per second.

Readings of vacuum gages at pump suction — port—5½ inches; starboard—5¼ inches.

(2) With Hatches Open.—In this condition the following results were obtained:

Rate of discharge at 1250 engine revolutions per minute — 1680 gallons per minute.

Readings of vacuum gages at pump suction — port — 3 inches; starboard—2¼ inches.

The above results indicate that drawing air into the tanks through the valves has practically no effect on the capacity of the pumps.

When the barge received its first cargo at Sewaren, N. J., on July 7, a low-reading gage was placed on No. 3 tank and the following observations were made:

(1) With the vapor being discharged through the deck line only (without connection to the shore line), and the full loading capacity applied to No. 3 tank, the reading was 8.5 ounces. This pressure is pro-

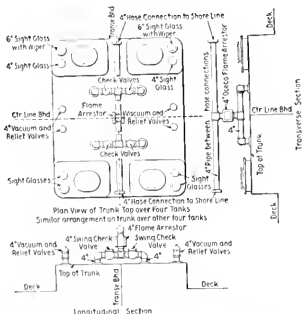


FIG. 2.—DECK VAPOR SYSTEM INSTALLED ON THE DIESEL-ELECTRIC TANKERS OF THE LAKE TANKERS CORPORATION

duced by a 7-ounce load in the tank relief valve and 1.5 ounce friction in the deck pipe and fittings.

(2) With the deck vapor pipe connected to the shore line, and the full loading capacity applied to No. 3 tank, the reading was 13 ounces.

The difference between these two readings, 4½ ounces, represents the friction loss in the shore vapor line. This checks fairly well with the theoretical friction loss based on the loading rate of 1200 gallons, or 160

cubic feet per minute.

It has been found that the system of disposing of the exhaust gases ashore keeps the air in the vicinity of the vessel entirely free of gasoline fumes and that the back pressure does not retard the loading operation. Experiments show that from 900 to 1000 gallons of light gasoline can be recovered from the vapor released when loading a 10,000-barrel barge.

Other arrangements of deck vapor lines and their connections to the tanks are shown in Figs. 2 and 3. In these cases, the vacuum and relief valves (so-called breather valves) are of the atmospheric type and do not form an integral part of the venting system. They act rather as safety valves in case the vapor line is closed off by accident or carelessness; and for tank venting when not loading cargo. Separate valves are then introduced to isolate each tank from the other tanks and from the shore line. The arrangements shown are used on vessels of the Sun Oil Company and the Lake Tankers Corporation, both of which have taken a leading part in inaugurating safety measures on tankers.

● Inert Gas and Fire Extinguishing

The use of inert gas to replace air in cargo and fuel tanks has been developed quite extensively during the past few years. It is probably the most effective fire prevention measure yet found, especially in combination with remote venting facilities.

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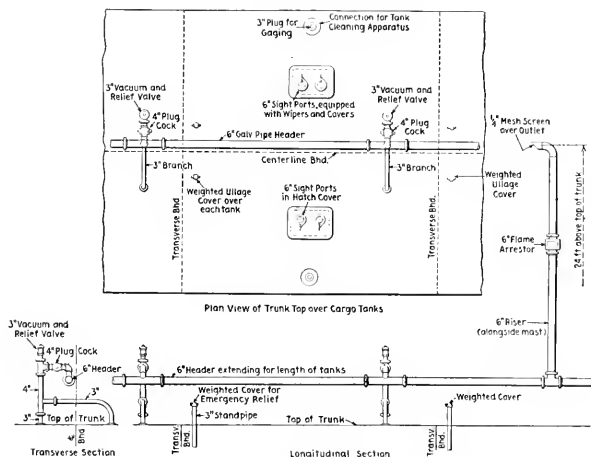


Fig. 3. Deck vapor system installed on motor tanker Blue Sunoco.

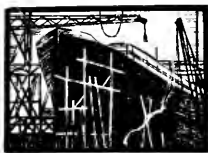
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American Shipbuilding

WINSLOW GETS TOWBOAT AND BARGES CONTRACT

Contract for construction of a 72-foot towboat and three barges has been awarded to the Winslow Marine Railway and Shipbuilding Company by the Alaska Juneau Gold Mines, according to an announcement made recently. The work is expected to involve an expenditure of \$75,000.

The towboat will be 72 feet in length with 18-foot beam and be powered by a 270-horsepower diesel engine. No announcement was made regarding the type of barges to be built. Construction will start at once.

ARC WELDED BOATS FOR VENEZUELA

Contract for eighteen arc welded steel service launches to be operated in Venezuela was recently awarded to Jakobsen and Petersen Company, Inc., Brooklyn, New York, by the Lago Petroleum Corporation, subsidiary of the Standard Oil Company of New Jersey. Of the dispatch boat type, these small passenger and cargo vessels are 44 feet in length, 10 feet beam, 4 feet 3 inches draft, designed for one-man operation and

powered with a 100-horsepower Diesel engine.

Hull framing consists of a bar keel 7 8 inch thick by 3 1/2 inches wide and transverse frames 1/4 inch thick by 6 inches wide spaced 18 inches apart. These transverse frames are notched on the outboard face to receive longitudinal stringers which are welded to each frame from stem to stern.

Except under seams, these stringers are 1/4 inch thick by 3 inches wide. Stringers in way of seams are 3/8 inch thick and 3 inches wide and serve as seam battens and longitudinal seams are welded together and welded to stringers. The hull plating thickness is 1/4 inch on deck and 3/16 inch in sides and bottom.

The smooth surface of the hull and the lines of the underwater body will offer minimum resistance to the passage of these boats through the water. The advantage of this type of construction will be apparent in the free flow of water to the propeller which should result in low slippage and high propeller efficiency. According to the builders these vessels were constructed in about half the time that would be required if built

by the orthodox method. All welding was done with Lincoln Electric Company equipment.

MCCORMICK DOCK TO BE EXTENDED

To provide additional berthing and transit shed space at the terminal used by the McCormick Steamship Company, the Los Angeles Harbor Commission have voted to extend berth 177 at a cost of approximately \$53,000.

The extension will be 160 feet long and will have an average depth of one hundred feet. The transit shed capacity of the McCormick terminal will be increased approximately 25 per cent by the improvement.

The engineering staff of the harbor department was instructed to have plans and specifications for the extension ready.

The bids will be opened about December 7, and work is expected to start soon thereafter.

MOORE GIVEN LIGHTSHIP JOB

Contract has been entered into with the Moore Dry Dock Company, San Francisco, California, for converting Lightship No. 83 from a coal burner to an oil burner, this work including the furnishing and installing of new Babcock & Wilcox Boilers, in the total amount of \$65,964; the specified time of completion of this work to be 119 calendar days.

DRAVO GETS CONTRACT TO CONSTRUCT NEW TOWBOAT

The Dravo Contracting Co., Pittsburgh, Pa., has been awarded a contract, reported to be of about \$265,000, to construct a sternwheel towboat for the Pittsburgh Coal Co. To be known as the Champion Coal, the vessel will be 148 x 34 x 6 feet, with propelling equipment to consist of twin-tandem compound condensing machinery and with the steam plant including a coal burning water tube boiler equipped with mechanical stoker and superheater.



Arc Welded Steel Dispatch Boats for Venezuela.

Left Lower: Details of Framing.
Right Lower: Finished Hull.

(Photos Courtesy Lincoln Electric Co.)

Progress of Construction

The following Report Covers the Shipbuilding Work in Progress at the Leading Shipyards of the United States as of November 1, 1934

Pacific Coast

BETHLEHEM SHIPBUILDING CORPORATION, LTD.

(Union Plant)
San Francisco

DRYDOCK, PAINT, MISCELLANEOUS: U.S. Dredge A. Mackenzie, S.S. Cuzco, S.S. Santa Elena, S.S. Pacific Pioneer, S.S. Chiriqui, M.S. Pegasus, S.S. Manulani, S.S. Victoria City, Shell Oil Barge No. 5, Barge Martinez, S.S. Talamanca, S.S. Antigua, S.S. Mammalei, S.S. West Nilus, S.S. Texan, S.S. Point Gorda.

ENGINE AND MACHINERY REPAIRS: S.S. President Van Buren, S.S. Lake Galewood, S.S. President Lincoln, S.S. President Garfield, S.S. Santa Rosa, S.S. Stanley Dollar, S.S. Mariposa, S.S. President Tart, S.S. President Hoover, S.S. President Cleveland, M.S. Australia, S.S. President Pierce.

LAKE UNION DRYDOCK & MACHINE WORKS

Seattle, Wash.

NEW CONSTRUCTION: Hull No. 103, Ariadne, U.S. Coast Guard patrol boat; keel laid March 23, 1934, launched July 1, 1934; estimated delivery, October, 1934.

Hull No. 104, Cyane, U.S. Coast Guard patrol boat; keel laid June 12, 1934; estimated launching August 25, 1934; estimated delivery Nov. 1, 1934.

THE MOORE DRYDOCK CO.

Oakland, Calif.

DRYDOCK, PAINT, MISCELLANEOUS: Sea Ranger, Tug E. P. Ripley, Mexican, Elizabeth, Charles R. McCormick, Virgil G. Bogue, Golden Hind, Tug Henry J. Kaiser, Wilhilo, U.S.S. Grant, Santa Fe Barge No. 8, Point San Pedro, Tug John Cudahy, Golden State.

THE PUGET SOUND NAVY YARD

Bremerton, Washington

NEW CONSTRUCTION: U.S.S. Worden (Destroyer No. 352), LBP, 334'; beam 34'2 1/2"; loaded draft, 10'10"; geared turbine engines; Yarrow type water-tube boilers; keel laid Dec. 29, 1932; launched October 27, 1934.

U.S.S. Cushing (Destroyer No. 376); LBP, 334'; beam, 35' 1/4"; loaded draft, 10'10"; geared turbine engines; express type boilers; keel laid August 15, 1934.

U.S.S. Perkins (Destroyer No. 377); LBP, 334'; beam, 35' 1/4"; loaded draft, 10'10"; geared turbine engines; express type boilers; building under provisions of National Industrial Recovery Act; estimated keel laying, November 20, 1934.

Two 1500-ton destroyers for U. S. Navy; contract received August 22, 1934.

Care and Preservation (out of Commission): Aroostook, Jason, Kearsgargo, Patoka, Pawtucket, Promethens, Pyro. DRYDOCK, PAINT, MISCELLANEOUS: Pennsylvania, Maryland, New York, Concord, Richmond, Astoria, Swallow, Mahopac, Tatnuck, Challenge, Wando.

UNITED STATES NAVY YARD

Marine Island, Calif.

NEW CONSTRUCTION: Smith, U.S. torpedo boat destroyer (DD378); 340 ft. long, 35 knots speed; standard displacement, 1500 tons; keel laid October 27, 1934; estimated completion date, Feb., 1936.

Preston, U. S. torpedo boat destroyer (DD-379); 340 ft. long; 35 knots speed; standard displacement, 1500 tons; keel laid, October 27, 1934; estimated completion date, May, 1936.

DD391, Destroyer for U.S. Navy; standard displacement 1500 tons; no dates set.

SS181, Submarine for U.S. Navy; no dates set.

Atlantic, Lakes, Rivers

AMERICAN BRIDGE COMPANY

Pittsburgh, Pa.

NEW CONSTRUCTION: Repairs to 20 barges for Carnegie Steel Co.; 14 completed.

BATH IRON WORKS

Bath, Maine

NEW CONSTRUCTION: Hull No. 154, Dewey (DD 349), torpedo boat destroyer for U.S. Navy; keel laid Dec. 16, 1932; launched July 28, 1934; delivered October 3, 1934.

Hull No. 159, Drayton (DD 366), torpedo boat destroyer, U.S. Navy; keel laid, March 20, 1934; launching, no date set; estimated delivery November, 1935.

Hull No. 160, Lamson (DD 367), torpedo boat destroyer, for U.S. Navy; keel laid, March 20, 1934; launching, no dates set; estimated delivery, January, 1936.

BETHLEHEM SHIPBUILDING CORPORATION

Fore River Plant,
Quincy, Mass.

NEW CONSTRUCTION: Heavy Cruiser CA-39, Quincy, 10,000 tons. Estimated delivery January, 1936.

Heavy Cruiser CA44, Vincennes, 10,000 tons. Estimated delivery January, 1937. Keel laid January 2, 1934.

Four Torpedo Boat Destroyers: DD-360, Phelps, keel laid January 2, 1934; estimated delivery, December, 1935.

DD361, Clark, keel laid January 2,

1934; estimated delivery February, 1936.

DD362, Moffett, keel laid, January 2,

1934; estimated delivery April 1936.

DD363, Hatch, keel laid, April, 1934; estimated delivery, June, 1936.

CHARLESTON DRYDOCK CO.

Charleston, S.C.

NEW CONSTRUCTION: Contract for one 5,000-barrel all-welded steel tanker for Messrs. Thurber & Powers of Boston; estimated completion date, Dec. 1, 1934.

DRYDOCK, PAINT, MISCELLANEOUS: Snagboat Waterce, Lighthouse Tender Mangrove.

COLLINGWOOD SHIPYARDS, LTD.

Collingwood, Ont.

DRYDOCK, PAINT, MISCELLANEOUS: Tug Ital G. Weddell.

DEFOE BOAT AND MOTOR WORKS

Bay City, Mich.

NEW CONSTRUCTION: U. S. Coast Guard Cutter No. 152 Tahoma; displacement tonnage 1000; geared turbine drive; B. & W. boilers; 1500 h.p.; keel laid Dec. 15, 1933; launched Sept. 5, 1934; estimated delivery, Oct. 20, 1934.

THE DRAYO CONTRACTING CO.

Engineering Works Dept.,

Pittsburgh, Pa., and Wilmington, Del.

NEW CONSTRUCTION: Hull No. 997, one diesel sternwheel towboat of 91 gross tons.

Hull No. 1164, 750 b.p. twin screw diesel towboat for stock.

Hull No. 1202; Lighthouse Tender Jasmine, for U. S. Lighthouse Service; 187 gross tons.

Hull No. 1203, Steam Sternwheel 800 H.P. towboat for Pittsburgh Coal Company.

This makes a total of 4 hulls under contract, with a total gross tonnage of 1328.

ELECTRIC BOAT CO.

Groton, Conn.

NEW CONSTRUCTION: Hull No. 19, fleet submarine, Shark, (SS174); L.B.P. 298'; beam, 25'; standard displacement, 1315 tons; keel laid, October 24, 1933; estimated launching, April, 1935.

Hull No. 20, Tarpon (SS175); L.B.P. 298'; beam, 25'; standard displacement, 1315 tons; keel laid, Dec. 22, 1933; estimated launching, February, 1935; possible delivery, November, 1935.

Hulls Nos. 21, 22, and 23—S.S. 176, S.S. 177, S.S. 178, submarines for U. S. Navy; standard displacement 1330 tons.

THE FEDERAL SHIPBUILDING AND DRYDOCK COMPANY

Kearny, N. J.

NEW CONSTRUCTION: Two destroyers, DD368 Flusser and DD369 Reid for the U. S. Navy, estimated completion dates: Flusser, Nov., 1935; Reid, February, 1936.

INGALLS IRON WORKS

Birmingham, Ala.

NEW CONSTRUCTION: Hull No. 82, Oil Barge, keel laid May 8, 1934; L.B. P. 200'; beam 40'; loaded draft, 8'6"; launched Aug. 1, 1934; delivered.

MANITOWOC SHIPBUILDING CO.

Manitowoc, Wis.

NEW CONSTRUCTION: Three U. S. Coast Guard Patrol Boats, Hull Nos. 277 Dione; 278 Electra; and 279 Pandora; L.B. P. 165'; beam 25'3"; loaded draft, 8'6"; speed loaded, 18 knots; Diesel engines, 1200 S.H.P.; all three launched June 30, 1934; estimated delivery dates: Dione, Sept. 29, 1934; Electra, Oct. 11, 1934; Pandora, Oct. 27, 1934.

Hull No. 280, Lighthouse tender, Tamarack, L.B.P. 111'8"; beam 29'; loaded draft, 7'; speed loaded 10½ knots; diesel electric, 450 S.H.P.; estimated delivery Nov. 1, 1934.

THE MARIETTA MANUFACTURING COMPANY

Point Pleasant, W. Va.

Three 165' Patrol Boats for U. S. Coast Guard, Washington, D. C., Nike, Nemesis, and Triton, 25'3" beam, 13' 2" depth; will draw approximately 7'; twin-screw type, propelled by two 650 horsepower Winton Diesel engines. Total displacement of each vessel approximately 300 tons; required speed 16 knots—now under construction; Nike launched June 23, 1934; Nemesis launched, July 7, 1934; Triton launched August 8, 1934; estimated delivery dates, Oct. 9, 1934; Oct. 29, 1934; and Nov. 18, 1934 respectively.

Two Side Wheel Self-Propelled 34' Pipe Line Dredges of the Dustpan Type. Total contract price \$1,016,500.00. Delivery in 180 and 210 days—Length, molded, 270'0"; length overall, 277' 1½"; breadth, molded, 50'0"; breadth overall, 84'8¾"; depth, molded, 8'6"; depth midships, 9'3", first keel laid May 2, 1934; second keel laid June 28, 1934; launched Sept. 1, 1934 and Oct. 6, 1934, respectively.

One twin screw diesel driven towboat for U. S. Engineer's office, Vicksburg, Miss.; length molded 176'; breadth, 38'; depth 8'6"; two 650 H.P. diesel engines; two 75 and one 15 K.W. diesel driven generating sets; contract price \$314,750.00, delivery at Vicksburg, Miss., in six months, estimated keel laying Oct. 10, 1934.

MIDLAND BARGE COMPANY

(Subsidiary of Treadwell Construction Company.)

Midland and Erie, Pa.

NEW CONSTRUCTION: Steel Barge 100'x24'x7'. Two steel launches, 31 ft.

by 8 ft. 6 ins. by 2 ft. 6 ins. for U. S. Engineers, Memphis, Tenn.; completed and delivered. Four barges, 100'x26'x6" for stock.

MIDLAND SHIPBUILDING CO.,

Midland, Ontario

DRYDOCK, PAINT, MISCELLANEOUS: S.S. Stadacoma, S.S. Ashcroft.

NASHVILLE BRIDGE CO.,

Nashville, Tenn.

NEW CONSTRUCTION: Hull No. 286, Snag boat for U. S. Government, keel laid April 1, 1934; launched, June 24, 1934; estimated delivery, November, 1934; L.B.P. 170'; beam 38'; loaded draft 4½'; 600 I.H.P. engine; 2 boilers.

Hulls Nos. 297, 298, 299, three barges for stock; 100'x26'x6½"; estimated launchings, October 1, 10 and 20 respectively.

Hull No. 300; barge for Davidson County; 60'x16'x3½"; launched October 15, 1934.

NEWPORT NEWS SHIPBUILDING & DRYDOCK CO.

90 Broad Street, New York

NEW CONSTRUCTION: H 359 aircraft carrier CV5, Yorktown, for U. S. Navy; keel laid May 21, 1934; estimated delivery, October 3, 1936.

H360 aircraft carrier, CV6, Enterprise, for U. S. Navy; keel laid July 16, 1934; estimated delivery February 3, 1937.

H361, light cruiser for U. S. Navy; completion time 34 months after date of formal award. Date of contract Aug. 22, 1934.

THE NEW YORK SHIPBUILDING COMPANY

Camden, N. J.

NEW CONSTRUCTION: Contract for four destroyers: Hull No. 408, Porter (DD356); Hull No. 409, Selfridge (DD-357); Hull No. 410, McDougal (DD-358); Hull No. 411, Winslow (DD-359); of 1850 tons each; keels laid, Dec. 1933.

Two light cruisers; Hull No. 412, Savannah (CL42), Hull No. 413, Nashville (CL43), of 10,000 tons each for the U. S. Navy Department; estimated delivery dates are as follows: DD356, Porter, Dec., 1935; DD357, Selfridge, Feb., 1936; DD358, McDougal, Apr., 1936; DD359, Winslow, June, 1936; CL42, Savannah, Aug., 1936; CL43, Nashville, Dec. 1936.

Oil tanker, No. 414, and oil tanker No. 415, for Standard-Vacuum Transportation Company, 15,000 tons D.W. each; keels laid March 26, 1934; delivery early 1935.

(C.L. 46) One light cruiser, Hull No. 416, for U. S. Navy; weight 10,000 tons; estimated delivery, August 1937.

THE PUSEY & JONES CORP.

Wilmington, Del.

NEW CONSTRUCTION: Nos. 56, Algonquin; 57, Comanche; and 58, Mohawk; cruising cutters, building for

Treasury Department, U. S. Coast Guard Service; L.B.P., 150'; beams, 36'; loaded draft 13'; speed loaded, 15 miles per hour; turbine engines, 1500 S.H.P.; two watertube boilers, 325 pounds pressure, construction schedule; No. 56, keel laid, January 16, 1934; launched July 25, 1934; delivered, October 20, 1934; No. 57, keel laid January 17, 1934; estimated launching, September 6, 1934; estimated delivery, November 2, 1934; No. 58, keel laid, February 1, 1934; estimated launching, September 21, 1934; estimated delivery, December 8, 1934.

SPEDDEN SHIPBUILDING CO.

Baltimore, Md.

NEW CONSTRUCTION: Hull No. 274 (Diesel), Electric, wrought iron hull, Boarding Cutter, for the U. S. Public Health Service, Staten Island, N. Y.; keel laid March 15, 1934; launched, August 8, 1934; estimated delivery Dec. 27, 1934; L.B.P. 100'8"; beam, 23'; loaded draft, 10'; speed loaded, 12 knots; two 360 B.H.P. Fairbanks Morse engines. Contract received Jan. 11, 1934.

SUN SHIPBUILDING AND DRY

DOCK CO.

Chester, Pa.

DRYDOCK, PAINT, MISCELLANEOUS: S.S. Sarcoite, S.S. Oriskany, S.S. West Eldara, M.S. Eastern Sun, S.S. Atlantic Sun, S.S. Delaware Sun, M.S. Pacific Sun.

UNITED DRYDOCKS, Inc.

Staten Island, N.Y.

NEW CONSTRUCTION: DD364, destroyer Mahan, estimated delivery, Oct. 1935; L.B.P. 334'0"; beam 35'0"; mean draft, 10'10"; keel laid June 12, 1934; estimated delivery Dec. 20, 1935.

DD365, destroyer Cummings, estimated delivery, Dec., 1935, for U. S. Navy; L.B.P. 334'0"; beam 35'0"; mean draft 10'10"; keel laid June 26, 1934; estimated delivery, Dec. 30, 1935.

DD 384, Destroyer for U. S. Navy; estimated delivery, May, 1936.

DD 385, Destroyer for U. S. Navy; estimated delivery, July 1936.

UNITED STATES NAVY YARD

Boston, Mass.

NEW CONSTRUCTION: Destroyer DD370, Case, L.B.P. 334'; beam 35'; keel laid, Sept. 19, 1934; estimated delivery, Feb. 1936.

Destroyer DD371, Conyngham, L.B.P. 334'; beam 35'; estimated delivery, May, 1936.

Destroyer DD354, Monaghan, L.B.P. 334'; beam 34'2"; keel laid November 21, 1933; estimated delivery, May, 1935.

Destroyer DD351, Macdonough, keel laid May 15, 1933, L.B. P. 334'; beam 34'2"; launched Aug. 22, 1934; estimated delivery, March, 1935; for the U. S. Navy.

DD389 and DD390, two light destroyers; estimated delivery during 1937.

UNITED STATES NAVY YARD Charleston, S.C.

NEW CONSTRUCTION: U.S.S. *Charleston*, gunboat (PG51) for U. S. Navy, building period assigned by Navy Department, Nov. 1, 1933, to Feb. 1, 1936. Work started Feb. 1, 1924.

Coast Guard Harbor Cutters 61, 63, and 64; work started Feb. 1, 1934; keels laid June 8, 1934; launched Sept. 28, 1934.

One Coast Guard Cutter (2000 tons). No dates set.

UNITED STATES NAVY YARD New York, N. Y.

NEW CONSTRUCTION: DD350. Hull, destroyer; L.B.P. 334'; beam, 34'2"; standard displacement, 1500 tons; geared turbine engines; express type boilers; keel laid March, 1933; launched Aug. 11, 1934; estimated delivery July, 1935.

DD 353, Dale, destroyer, dimensions same as above; keel laid, February 10, 1934; estimated delivery, July, 1935.

CL 40, Brooklyn, light cruiser, L.B.P. 600'; beam 61'8"; standard displacement, 10,000; geared turbine engines; express type boilers; estimated delivery, March 24, 1936.

PG. 50, Erie, gunboat; L.B.P., 308'; beam, 41'; standard displacement, 2000 tons; geared turbine engines; express type boilers. Building for U.S. Navy, estimated delivery, December, 1935.

UNITED STATES NAVY YARD Philadelphia, Pa.

CL41, Philadelphia, L.B.P. 600'0"; beam 61'7¾"; molded depth at side to main deck amidships 42'0¾"; draft corresponding to normal displacement 21'8½"; standard displacement 10,000 tons; date of completion as reported by building yard, January, 1937.

DD355, Aylwin, L.B.P., 334'0" beam, 34'2½"; depth molded at side to main deck amidships, 19'7-7/8"; draft corresponding to normal displacement 10'2-12/16"; standard displacement 1500 tons; keel laid September 23, 1933; launched July 10, 1934; estimated delivery April 1, 1935.

DD372, Cassin, L.B.P., 334'0"; beam, 35'0-1/8"; depth molded at side to main deck amidships 19'7-7/8"; draft corresponding to normal displacement, 10'10"; standard displacement, 1500 tons; keel laid, October 1, 1934; estimated completion date, March 15, 1936.

DD373, Shaw, L.B.P. 334'0"; beam, 35'0-1/8"; depth molded at side to main deck amidships, 19'7-7/8"; draft corresponding to normal displacement, 10'10"; standard displacement, 1500 tons; keel laid October 1, 1934; estimated completion, June 15, 1936.

Four coast guard cutters, L.B.P., 308'0"; beam 41'0"; depth molded at side to main deck amidships, 22'6"; draft corresponding to normal displacement, 12'6"; standard displacement, 2000 tons; no dates set.

CA45, Heavy Cruiser, L.B.P., 600'0";

beam, 61'9¾"; depth molded at side to main deck amidships, 42'0-3/8"; draft corresponding to normal displacement, 21'10"; standard displacement, 10,000 tons; no dates set.

UNITED STATES NAVY YARD Portsmouth, N. H.

NEW CONSTRUCTION: S.S. 172, Porpoise; keel laid, October 27, 1933; estimated delivery, Feb. 1936. SS 173, Pike, keel laid, Dec. 20, 1933 estimated delivery, May, 1936; L.B.P. 289'0"; beam 24'11-1/16"; loaded draft 13'9"; diesel electric engines.

Coast Guard Harbor Cutter 62 Hadson; estimated delivery, Nov. 1934; L.B.P. 104'0"; beam 24'0"; loaded draft 10'6"; diesel electric engines.

UNITED STATES NAVY YARD Portsmouth, Va.

NEW CONSTRUCTION: Torpedo Boat Destroyer *Tucker (DD374)* for U.S. Navy, 341 ft. long; beam 35'; loaded draft, 10'10"; treaty standard displacement, 1500 tons; No. 4 boilers; 35 knots speed; estimated delivery, February, 1936.

Torpedo Boat Destroyer Downes (DD375) for U.S. Navy, 344 ft. long; beam 35'; loaded draft, 10'10"; treaty standard displacement, 1500 tons; No. 4 boilers; 35 knots speed; estimated delivery, May, 1936. Laying down lines under way in mold loft.

Book Review

THE CHEMICAL FORMULAE, a condensed collection of valuable,

timely, practical formulae for making thousands of products in all fields of industry. 601 pages, bound in orange pebbled cloth. Published by The Chemical Formulary Company, Brooklyn, N. Y. Price \$6.00.

Over forty industrial chemists, professors, and technicians in many branches of industry cooperated with H. Bennet, editor in chief, in compiling this comprehensive volume.

In his preface, the editor says — "Many a chemist on entering an industry soon finds that the bulk of the products manufactured by his concern are not synthetic or definite chemical compounds but are mixtures, blends, or highly complex compounds of which he knows little or nothing. The literature in this field, if any, may be meagre and scattered, or antiquated.... A definite need has existed for an up-to-date compilation of formulae for chemical compounding and treatment.... Many publications, laboratories, manufacturing companies and individuals have been drawn upon to obtain the latest and best information.

Freights, Charters, Sales

November 17, 1934.

We have the following fixtures to report:

Grain: American steamer North Haven, Columbia River to Gulf or North of Hatteras, Pacific Continental Grain Co., November; British steamer Box Hill, British Columbia to United Kingdom, December, Canadian Transport Co.

Lumber: British steamer —Court, British Columbia to Japan, November, £5,000, f.i.o. lump sum; British steamer Harmatris, North Pacific to China, lump sum, December, Dant & Russell; British steamer Eldonpark, December, £4,750, lump sum, North Pacific loading; British steamer Winkleigh, Columbia River to China, lump sum, November, Dant & Russell; a British steamer, British Columbia to Shanghai £5,400, lump sum, f.i.o., December; a British steamer, North Pacific to two ports Japan, £5,200, f.i.o. December; French motorship Leopold L. D., British Col-

umbia to Australia, £4,875, lump sum, November, Pacific Export Lumber Co.

Tankers: A tanker, California to Japan (dirty) 10/6, February; British tank steamer Scottish Heather, California to Japan, (dirty) 10/6, February.

Time Charter: a steamer, North Pacific trading, delivery and redelivery Japan, 70 cents, November.

Miscellaneous: British steamer Brandon, Leningrad to Tacoma, ore, 11/-, f.i.o., November; British steamer Ridley, Los Angeles to China, Gypsum rock, November/December.

Shipping Sales: American steamer Lake Galewood, Robert Sudden to Pacific Lumber Co.; American ships Star of Lapland, Star of Shetland, Star of Zealand, American bark Star of Holland, Alaska Packers Association to Trans-Pacific Commercial Co. of Japan (to be scrapped).

PAGE BROTHERS, Brokers.

Safety in Small Tanker Design

(Continued from Page 381)

In fact, the two should always be associated. It is said by officials of oil companies whose ships are so equipped that the cost is insignificant in comparison with the cost of the vessel, and that the operating difficulties are practically nil. With an inert-gas system installed, they feel that a tanker is safe against hazard except hose failure; in addition, it is possible to gas-free the tanks at a minimum expenditure of time and labor.

Inert gas must be generated in large quantities in order to fill the tanks while discharging cargo. On steam tankers, flue gas taken from the smoke stack furnishes the required amount of carbon dioxide. The system, originated and developed by the Standard Oil Company of California and adopted by a few of the other oil companies, applies particularly to steamers. As a rule, the larger the vessel, with a correspondingly larger demand for inert gas, the more abundant is the supply. On motor tankers, a donkey boiler or a special oil-burning furnace must be depended on, and a factor is thereby introduced that must be considered both from the economic and the safety standpoints. The production of carbon dioxide then costs something and necessitates burning oil on an otherwise fireless ship.

For the small tanker with which we are concerned in this paper, the installation of an inert-gas system does not appear, at the present time, to be the most practical method of protecting the cargo tanks. The problem can be taken care of quite satisfactorily by keeping the tanks closed and under a slight pressure, by remote venting of the tanks at all times, and by installing a fire-extinguishing system for use in an emergency. Liquid CO_2 can be stored under pressure in cylinders of the required capacity, with pipes led to the hatch trunks of all the cargo tanks. In the event of fire or the danger of fire, a blanket of inert gas can be immediately introduced into the tanks. This gas is swept across the trunks, cutting off the supply of air necessary for combustion, and by its smothering effect the fire is ex-

tinguished and the cargo protected. It is needless to comment further on this system of fire protection, the details of which are well known to everybody. Many tankers in this country are so equipped.

Fire-extinguishing apparatus of the built-in, centrally-controlled type (CO_2 and foam) is also installed for the protection of the fuel tanks, engine room, pump room, motor room, lamp room, paint room, etc., as well as the cargo tanks. The cost of complete protection will average between one and two per cent of the cost of a self-propelled vessel, and may often be largely balanced by the saving of insurance premiums over a term of years.

A system for the protection of

gasoline-engine installations has been developed and placed on the market, in which inert gas is supplied by the engine exhaust. CO_2 in the correct proportion is extracted from the exhaust. After it is washed, cooled, filtered and compressed, it is carried to a high-pressure storage tank. From there it is taken as required, through a reducing valve, to the gasoline tank and to a jacket surrounding the feed line. The purpose is to prevent air from coming in contact with gasoline, from the tank filling pipe to the engine carburetor. Complete inert gas producing plants are also manufactured for the protection of any flammable liquid in storage tanks.

Abstract of paper read before The Society of Naval Architects and Marine Engineers, 29 West 39th Street, New York, November 16, 1934.

(To Be Continued)

Trade Literature

"Abrasives, Their History and Development" is the title of a 27-page booklet put out recently by the Norton Company of Worcester, Massachusetts. The title of the brochure indicates its subject matter. The book is beautifully illustrated and attractively printed on an excellent quality paper. A copy may be had on request to the Pacific Marine Review or the Norton Company.

The Enterprise Engine Corporation, San Francisco, have a new folder entitled "Power for Every Purpose", dealing with their Monovalve Diesel engines. It is illustrated and comprehensive. May be obtained free of charge from Pacific Marine Review or the company direct.

The General Electric Company, Schenectady, N.Y., have recently introduced three small folders for distribution to those interested in indoor disconnecting switches, high-voltage magnetic switches, and indoor alternating-current cubicle switch gear. All three contain numerous illustrations and several line drawings of the equipment and its use and installation. Requests may be made to the General Electric

Company direct, or to Pacific Marine Review.

A 128-page catalog entitled "Industrial Cable" has just been issued by the General Electric Company, Schenectady, N.Y. Contents include every type of cable and appurtenances under the general headings of Varnished-Cambria-Insulated cable, Rubber-insulated cable, Asbestos types of cable, Shipboard cable, Armored finishes and Magnet wire and coils. Types and applications, general information, and special features of each class is gone into at length. The book is well illustrated. A copy may be obtained from Pacific Marine Review, or from General Electric.

Root-Connorsville Blower Corporation, Connorsville, Indiana, has brought out a folder describing their standard and heavy duty blowers. Charts, line drawings and photographs illustrate the principal uses: agitation and aeration, combustion service, supercharging and scavenging, and numerous other applications requiring delivery of air under pressure or vacuum. Those interested may obtain the leaflet from Pacific Marine Review.

New Gas Driven Tiering Truck for Pallet System

A few years ago a prominent food container manufacturer, pondering the question of "air rights" in his warehouses, sent his idea of a solution to engineers of The Elwell-Parker Electric Company of Cleveland.

He asked whether finished goods in cases could not be tiered enough higher to substantially increase his storage capacity. The company not only designed and built a truck for the purpose, but co-operated with the container manufacturer in devising a complete system for handling his finished goods.

The method is known as the Elwell-Parker Pallet System, and comprises the tiering fork trucks, together with flat wooden pallets. These are loaded with standard containers or other large units, and are transported, tiered, and taken down again for delivery by the fork truck, without disturbing the pallet load and without any manual effort whatever. In some instances, the load is actually shipped from factory to customer without removal from the original pallet.

The first Elwell-Parker tiering fork trucks were operated electrically. Later the company developed gas-electric machines and is now building straight gas trucks also.

This high-speed truck, rugged in design and of powerful construction, has been brought out to encourage the further expansion of the Elwell-Parker pallet system of materials handling. It will help to make the use of pallets feasible for many concerns that have not heretofore used that method of materials-handling, tiering, storing, and removing from storage.

The new machine, designated as Elwell-Parker Type GER lift truck, is heavily powered and will handle loads up steep ramps at high speeds. A transmission safety-lock is fitted to hold truck on ramp should it be necessary to stop while acceleration from a stop on incline is attained by the standard Elwell-Parker method.

It quickly responds to the de-



A gas tilting, tiering fork truck when used with the pallet system will tier in warehouse, take down and transport direct or load on trailers and operate as a tractor drawing train to destination alongside ship or will unload trailers into storage, car or truck.

mands of the operator and sets an advanced standard for safety, speed and heavy duty service at low cost. It is sensitive to the requirements of a reduced throttle for operating in close quarters, is exceptionally powerful on ramps and speedy on the straight-away travel over long distances.

Type GER tier fork truck is an excellent companion for electric trucks, especially to care for the longer hauls. It will safely carry skid loads with all the speed desired, operating economically and with little attention other than supplying gas, oil and water.

Its design provides for the use of a ram, two or more forks, and other accessory attachments that qualify it for the pick up of a load on pallet or skid ahead of the machine. Large crates and rolls can be quickly lifted off the floor, transported in tilted position and stacked without operator leaving his position.

The truck has a rated capacity of 4000 to 7000 pounds and a travel speed of 6 to 12 miles per hour. The power plant is a four-cylinder motor of standard make, 4 x 4½ inches, developing 33 brake horsepower when operating at normal speed of 1,250 revolutions per minute.

Forks are detachable and side adjustable for spread; of cross-section and length to suit load pallet. Elevation of load is by means of a cylinder which receives oil from a heavy-duty geared hydraulic pump direct-driven from truck motor.

A separate hydraulic ram tilts the upright forward and backward, by means of levers. It likewise receives its power from the pressure pumps.

Why An American Merchant Marine

(Continued from Page 377)

The mail contracts for 1934, now discussed so freely, represent three per cent of our military budget and less than half of the former Shipping Board deficits, and an essential and indispensable service is rendered the American public.

The support furnished the American merchant marine supports not only the steamship industry; it supports all industries, agriculture, manufacture, land transportation and foreign commerce.

The importance of shipping in international relationship cannot be overstated. It is indicated sharply by the continuous and constant vigor with which foreign nations prosecute their merchant marine policies.

The Merchant Marine Act of 1928 must be regarded as a mature plan based on a fundamentally sound policy. It recognizes the necessity for adequate merchant marine services to protect and foster foreign trade; to carry our freight and passengers; to deliver our mails; to act as messengers of friendship and goodwill in times of peace, and to serve our public at large in times of national stress.

"Old Glory" must wave freely above the taffrail in every important port in the world in order to spread American prosperity and happiness.



Old Theories Exploded

By Arley Cheadle

For years scientific engineers have labored to find the reason for and the cure for the cancerous destruction of condenser tubing and water boxes where salt water is used for the cooling medium.

Lights and windows have been fitted in the condenser heads and observers have noted closely just what was going on in the circulating water while the condenser was in operation. These observers noted much turbulence and the release of large quantities of air bubbles and came to the natural conclusion that this entrained air freed by turbulence and impinging on the tube surface set up the corrosive action.

They therefore advised the installation of devices to eject this air from the circulating water before it reached the condenser tubes and in a number of instances this apparently retarded corrosion and increased the average life of the tubes.

British metallurgists developed a tube with an aluminum bronze alloy content which under use proved to eliminate the pitting so characteristic in the well known Admiralty bronze tubes. However under service conditions at sea aluminum bronze tubing seemed to develop a brittle condition and tubes would occasionally snap off and thus allow salt water to contaminate the boiler feed. These sudden breaks were attributed not to the fault of the tube but to vibration within the condenser. Later this theory was discarded and it has actually been shown that the sudden failures of aluminum bronze tubes are due to metal fatigue which is just another expression of electrolytic action.

The world renowned California coastwise liner S.S. Yale has presented many condenser problems, possibly more than any ten Pacific Coast vessels combined. A considerable fortune has actually been spent by her various owners in fighting the cancerous destruction of her condenser tubing and with very little success.

Recently the owners of the Yale were approached by an executive of

the Marine Electrolysis Eliminator Corporation of Seattle who after making an examination of the ship's condensers stated definitely that the trouble was none other than old man Electrolysis himself and that for a nominal expenditure his firm would banish this electro-chemical action from the condensers of the Yale. A telegraphic rush order was placed and within three days the necessary equipment was assembled and installed on the ship.

To give the reader some idea of the seriousness of the trouble experienced by the owners of this famous ship we have only to state that during the 30 days prior to this installation of the (Cheadle system) electrolysis eliminators, a total of sixty-four condenser tubes had been plugged, representing a daily failure of 2.13 tubes.

S.S. Yale operates on a very close sailing schedule plying daily 360 days per year between San Francisco and Los Angeles Harbor with just a few hours layover at each port. The attention of the entire engine room staff has been required to keep her condensers in operation, allowing practically no time to make other necessary mechanical repairs and adjustments.

The electrolysis eliminators have now been in operation on the Yale for a period of 30 days and they have proved 100% successful to date. Not a single case of tube failure has occurred during that period. The Electrolysis Eliminator Corporation is confident that this 30-day record will continue and that the old tubes now in the condenser will under this protection have a long and useful life. If this proves correct it would logically follow that a set of new tubes so protected would outlast the ship.

Since this installation on the Yale, Mr. J. Bullock, Superintending Engineer of the Dollar Line, has installed similar equipment in the condensers of their Trans-Pacific liner S.S. President Wilson and it is understood that several San Francisco ship owners are negotiating for this

same condenser protection for the steamers of their entire fleets.

The Cheadle System Electrolysis Eliminator is fully covered with basic patents. This device is proclaimed by many users to be the greatest development for ship-owners since the advent of radio. It is destined to save American ship-owners millions of dollars now spent annually in costly repairs and renewals to machinery and equipment parts destroyed by the ravages of cancerous electrolysis.

Electrolysis aboard ship is not caused by leaks or stray currents from the ship's power plant. It is an electro-chemical action set up by the primary battery which is always in action when two different metals are in contact with sea water, old Mother Nature's natural electrolyte.

New Sodium Lamp for Lighthouse

In order to ascertain whether or not the newly developed sodium vapor lamp is suitable for lighthouse purposes, the Lighthouse Service of the U. S. Department of Commerce has purchased the necessary lamps and equipment and is trying out a sodium lamp installation in the Cape May Lighthouse at Cape May Point, N.J., at the entrance to Delaware Bay.

The Cape May Lighthouse was erected in 1859. Its light source is 165 feet above mean high water and can be seen for approximately 19 nautical miles under clear atmospheric conditions. The lens is a first-order, 16-panel, flashing lens rotated by motor drive so that the beam of light has a four-second flash and a 26-second eclipse. The lamp itself does not flash—the rotation of the lens causing the alternate flash and eclipse.

In this test with the sodium vapor lamp, all equipment has been supplied by the General Electric Company, and was installed by the Fourth Lighthouse District.

Although several test installations of sodium vapor lamps have been made in the field of highway and street lighting, this is the first time that the sodium vapor light will have been tried in a lighthouse.

Executive

Appointment Honors Shipbuilding Career of John F. Metten

John Farrell Metten on Friday, October 19th, became president of the New York Shipbuilding Corporation, following the resignation of Mr. Clinton L. Bardo, who has headed the Corporation's operations for the past eight years.

The new president is a shipyard man whose career has been marked by steady, hard earned, advancements—raised on a farm and entering a shop at sixteen as a machinist apprentice, then erecting department machinist and draftsman at Newport News Shipbuilding & Dry Dock Co.; chief draftsman, chief engineer, and vice-president of the old Cramp Shipyard over a period of twenty-five years; president of the Marine Engineering Corporation, which undertook the first Standardization of Design for Naval Work building in private and government yards, resulting in the new U. S. Cruisers Nos. 24 to 31 being built at three private yards and two navy yards from identical plans prepared by this corporation; vice president in charge of hull and machinery design of the New York Shipbuilding Corporation, and now this corporation's head.

Without the aid of a formal college training—by self-schooling, private research and hard work, this talented engineer has won world wide recognition. In June, 1928, Lehigh University paid a rare tribute in making him a Doctor of Engineering.

A pioneer in marine developments (the holder of numerous active patents on turbine design, marine propulsion systems and auxiliaries), Mr. Metten is noted for a conservatism based on sound practice and common sense. In both the navy and merchant marine the name "Metten" connotes simplicity of design, reliability, and economical operation.

Outstanding examples of his work include:

U. S. Battleship Wyoming, famous flagship of the Atlantic fleet, called Old Reliable by her crew.

Propelling machinery of the Fall River Liner Commonwealth, one of the largest paddle engines in the world.

First large American direct turbine driven liners Great Northern and Northern Pacific, the former a troop transport record holder in the World War.

First large American turbine-reduction gear driven liners Siboney and Orizaba, of the Ward Line.

Many destroyers that became holders of the coveted Engineering Pennant, including forty-six destroyers built by Cramps during the War period and still in service, among which was the Cole, which attained the record speed of 41.17 knots on a special trial.

U. S. Scout Cruisers Richmond, Marblehead, Trenton, Memphis, leaders, in order, in navy engineering competition for vessels of their class.

Consulting engineer for the modern passenger liners Mariposa, Lurline and Monterey, recently completed at Bethlehem Shipbuilding Corporation, Fore River Plant, for the California-Honolulu-Australia Route of the Oceanic (Matson) Steamship Co.

United States Liners Manhattan and Washington, operating so successfully in the transatlantic trade.

Originator of the builder's designs accepted by the Navy Department for the 1850-ton destroyers and 10,000-ton light and heavy cruisers of the 1933 and 1934 building program.

Through all Mr. Metten has worked quietly—avoiding publicity, faithful to the principle that a job well



President

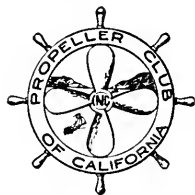
done speaks long after advertising copy has lost its appeal.

The directors' selection of one with so intimate a knowledge of shipyard men and methods, engineering and executive experience, and broad acquaintanceship, should prove a source of great satisfaction to all concerned in the New York Shipbuilding Corporation's operations.

C. M. Kaltwasser was elected executive vice-president and a member of the executive committee.

Roy S. Campbell is the new general manager. Biographical sketches of these two officials will appear in our next issue.

Attending a mid-November general meeting of the Pacific Coast sales department of the Chas. R. McCormick Lumber Company in San Francisco, were C. Wagner, vice-president, and A. H. Wagner, sales manager, of the St. Paul and Tacoma Lumber Company, Tacoma, Washington; H. Luëddemann, northwest manager, and M. D. Campbell, manager Sales Dept., of the C. R. McCormick Lumber Company, Portland, Oregon; J. N. Manning, district sales manager, C. R. McCormick Lumber Co., Seattle, Wash.; A. A. Gay, manager Sawmill Operations, C. R. McCormick Lumber Co., Port Gamble, Washington; and W. B. Wickersham, district manager, C. P. Henry, William Schorse, and William Helm of the Los Angeles branch of the concern.



PROPELLER CLUB of California

HEADQUARTERS

320 Market Street, Room 249
San Francisco

President

H. T. HAVISIDE

Secretary-Treasurer

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BOARD OF GOVERNORS

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Francis M. Edwards
Wm. C. Empey
Joseph J. Geary
John T. Greany

C. M. Le Count
W. Edgar Martin
Bernard Mills
Fletcher Monson
Ralph W. Myers

• New Members

N. O. Gunderson, Marine Superintendent, Mackay Radio Co., San Francisco.

Lincoln S. Wilson, General Agent, French Line, San Francisco.

Frederick T. Ross, Pacific Coast Representative, Marine Engineering & Shipping.

• In Memoriam

Captain Edward Mason, San Francisco Bar Pilot.

• Luncheons

November 20, 1934. Guest speaker—Mr. Nelson Macy, President, Navy League of the United States. Mr. Macy gave us a very fine talk on the history and status of our merchant marine and navy, past and present; the facts and figures that he presented were of vital interest to us all.

Chairman of the day—Walter J. Walsh.

December 4, 1934. Our guest speaker will be Mr. Charles Wheeler, vice-president, McCormick S.S. Co. His subject will be authoritative and instructive. Mr. Wheeler is one of the most sought-after speakers in Pacific shipping circles. Hear him!

Chairman of the day—Edward Harms.

• Nomination of Officers

The Nominating Committee consisting of Captain F. M. Edwards, chairman, W. C. Empey, Captain A. T. Hunter, R. H. Havside, John Parker, have nominated the following officers for the coming year:

For president, year 1935: Charles H. Robertson.

For governors, three-year terms: H. T. Havside, Phil Coxon, Edward Harms, L. M. Edelman.

Annual election and business meeting will be held Tuesday noon, January 8, 1935, in the Red Room, Fairmont Hotel, San Francisco.

SHIPMATES—

*Point Your Compasses WNW and Time
Your Voyages to Put into this Port on
DECEMBER 12*

The good ship Propeller Club bids you come aboard at the snug harbor—Main Dining Room—Fairmont Hotel, on this night of nights.

The Occasion is the Christmas Banquet and Jinks!

From the skipper on the bridge through all departments of the ship the slogan is "Let's give the boys the best."

And you can depend on just that—THE BEST—in refreshments, banquet-fare, entertainment, good fellowship.

■ ■ ■

The Propeller Club knows how —AND HOW!

• Sea Scout Sponsorship

The Propeller Club have again sponsored the sea scouts ship Alert. The boys comprising the crew of this boat have made quite a record during the past year, winning many prizes in competition, demonstrating their proficiency in the handling of small boats.

—PC—

Behind the scenes with the ban-

quet builders—meaning the committees working for the success of the Christmas Jinks—one finds the many details in capable hands, and experienced heads.... all functioning with the splendid cooperation of Skipper H. T. Havside, First Mate Charles Robertson, and Deck Officers who comprise our Board of Governors. It will be a memorable voyage!



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James Tyson, Jr., vice-president of the Nelson Steamship Company, recently announced the following promotions in the Seattle personnel: L. B. Fitch from district manager to Northwest manager, and R. J. McElhanehan from district manager to assistant Northwest manager. The return of T. R. Nielsen, formerly of the Grace Line and the Nelson Line, to the latter company was also announced. He will act in the capacity of district freight agent.

A combination of several of the San Francisco Bay and Sacramento and San Joaquin River operators in a corporation to be known as Freighters, Inc., was consummated during the month by the filing of articles of incorporation in Sacramento. Directors include: Captain Benjamin Walters, dean of the Stockton deep-water channel and head of the Island Transportation Company; F. J. Larkin, president of the Larkin Transportation Company; P. F. Wood of Wood and Seitz; L. L. Higgins of the Higgins Transportation Company; Henry E. Hansen, of the Stockton Transportation Company; R. H. Vehmeyer, who operates a Stockton transportation firm, and Paul A. Scherer of San Francisco.

The purpose of the new organization, according to announcement, is "to act as a public utility and a private carrier proposing to operate a freight, passenger, mail and express service from San Francisco Bay points, up the San Joaquin and Sacramento rivers, employing barges, scows, lighters, tugs and steamers." Plans for operation are rapidly nearing completion.

Eleanore Farrand Ross, for many years a member of the editorial staff of "Fireman's Fund Record," is the author of "Beloved City" a little volume just off the press, which describes in a series of personal impressions, San Francisco, the city of the writer's birth. The book is beautifully illustrated by Julian A. Links, another San Franciscan. "Beloved City" will be included in a collection of Californiana at the San Francisco Public Library among the works of Bret Harte, Gertrude Atherton, George Sterling and other notable California writers.

At the recent convention of the Propeller Clubs of the United States held at Savannah, Georgia, Frank W. Leahy, president of the F. W. Leahy Engineering Company of New Orleans, was elected National Vice-President, representing Inland Waterways.

Leahy is a native of San Francisco and sailed as engineer in the old Pacific Mail Steamship Co., and the Oceanic Steamship Co. in 1912. He was engineer on the city fire boat "Sullivan."

Announcement was made early in November by W. A. Ross, vice-president and general manager of sales of the Columbia Steel Company, of several changes in the San Francisco organization. John R. Gregory was made first assistant general manager of sales; Forrest G. Harmon, assistant general manager of sales; W. B. Sawyer, Jr., assistant general manager of sales; H. J. Bennett, director of sales promotion; T. E. Banning, traffic manager; J. D. Fenstermacher, manager of sales San Francisco district; and Harry G. Parcell, assistant manager of sales, San Francisco district.

Edgar M. Wilson, general agent in Southern California for the Dollar Steamship Lines, Inc., Ltd., was re-

cently elected president of the Los Angeles Steamship Association, for the coming year. Vice-president will be **R. V. Ross**, district manager for Furness (Pacific) Limited; while **Fred A. Hooper**, district manager of the American-Hawaiian Steamship Company will act as secretary and treasurer. Directors elected were **William Groundwater**, marine superintendent of the Union Oil Company; **H. R. Dorr**, resident manager of Norton, Lilly & Company; **G. C. Gable**, general manager of Hammond Lumber Company; **Perry S. Newcomb**, resident manager of Dodwell & Company Limited; **E. A. Mills**, president of the Crescent Wharf and Warehouse Company; and **Harold C. Smith**, manager of Williams, Dimond & Company.

E. Jens, manager of the North Pacific Coast service of the Hamburg-American Line, accompanied by **H. H. Eby**, general San Francisco representative, and **William Bode**, Seattle agent, spent several days in San Francisco during November. Mr. Jens is en route to his home in Hamburg, Germany, by way of New York.

In the recent election **H. L. Corbett** and **Miles Standish**, incumbents of the Port of Portland Commission, were returned to their positions. Other port commissioners elected were **H. M. Kenin**, **J. H. Lewis**, and **Dr. Earl Smith**. **J. N. Barde** was chosen for the short term to end January, 1935.

Changes in the personnel of the McCormick Line recently announced include the transfer of **Otto R. McKinney**, formerly of the Wilmington office, to San Diego, where he will act as district freight agent, under

R. A. Wheeler, general agent there. McKinney's place in Wilmington will be filled by **Charles Crowell**. Other additions to the Wilmington staff include **Robert Troxler**, and **Harvey J. Hayes, Jr.** **Dickson MacCartney** has joined the Los Angeles office.

Guy E. Buck, Grace Line's southern California manager, was in San Francisco during the month, conferring with company officials.

W. G. Rogers, general freight agent for the Yamashita Shipping Company, the Yamashita Kaisen Kaisha, and the "K" Line, passed through San Francisco recently accompanied by Mrs. Rogers and their daughter, Miss Aenid Rogers. The Rogers family were returning from a three-month tour of the Orient to their home in Seattle.

After a month spent in various parts of the United States making a survey of shipping conditions, **Charles S. Booth**, Southern California freight chief for Matson-Lassco, has returned to Los Angeles with the report that he found a comparison with last year to show that for the present business is distinctly on the up-grade.

Arthur B. Cahill, president of Sudden & Christenson, sailed recently aboard the Panama Pacific liner, Pennsylvania.

Carlton V. Lane, Balfour Building, San Francisco manufacturers' representative has just been appointed district marine sales representative for Haskellite Manufacturing Corp., Chicago, manufacturers of fire-resistant paneling.

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